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June 2, 1975

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Heating Systems: Conventional and Solar (Monitoring)

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TRANSCRIPT OF PROCEEDINGS
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Volume 9

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June 2, 1975

MONDAY, JUNE 2, 1975

The hearing reconvened at 11:00 A.M. on Monday, June 2, 1975, in the Chambers of the Montana House of Representatives, State Capitol, Helena, Montana.

The Honorable Carl M. Davis, Hearings Examiner, presided over the proceedings.

APPEARANCES:

APPLICANTS

William M. Bellingham, Esq.
John L. Peterson, Esq.
John Ross, Esq.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

Arden E. Shenker, Esq.
Ted J. Doney, Esq.

BOARD OF HEALTH AND DEPART. OF HEALTH AND ENVIRONMENTAL SCIENCES

Steve Brown, Esq.

NORTHERN CHEYENNE TRIBE, INC.

Peter Michael Meloy, Esq.

NORTHERN PLAINS RESOURCE COUNCIL

Gregory H. Warner, Esq.

The following proceedings were had:

HEARINGS EXAMINER: Let's go on the record, Are the parties ready to proceed?

MR. BELLINGHAM: The Applicants are ready, sir.

MR. SHENKER: The Department is ready.

HEARINGS EXAMINER: Very well, we will proceed with the cross-examination by the Department of Natural

Resources by Mr. Shenker.

MR. SHENKER: I think that we should put on the record, Mr. Davis, in respect to the exhibits that were tendered to us on Friday afternoon of last week, in connection with the Health, Air, and Water Quality Hearing, that on the list contained therein we did not receive Exhibits 66A, B, C, and D; Exhibits 68 and 69 --

HEARINGS EXAMINER: Just a moment, which were the first ones, Mr. Shenker?

MR. SHENKER: 66A, B, C, and D; Exhibits 68 and 69, 73, 74, 75, 76, 76A, B, C, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103A, B, C; also, we did not receive 106, 110, or 111.

HEARINGS EXAMINER: Did I get a copy of those exhibits?

MR. PETERSON: Did you get one?

HEARINGS EXAMINER: No.

MR. PETERSON: I will bring some more copies this afternoon.

HEARINGS EXAMINER: Very well, I guess you are aware of it.

MR. PETERSON: Many of those exhibits are studies that have been provided to the Department before this, and we will have some copies, that are now being made, of various studies that we will turn over; they aren't quite ready; 66, 68, and 69 will be delivered tomorrow.

HEARINGS EXAMINER: Thank you, Mr. Peterson.

Continuation of Cross-examination of Mr. Hofacker by Department of Natural Resources and Conservation

By Mr. Shenker (Cont.):

Q Mr. Hofacker, sir, I believe on Friday we stopped after a discussion in respect to your contact of your neighbors in order to obtain additional power when outages occurred at the Ryan and Kerr facilities in the winter, last?

A Yes, sir.

Q And I think the record was clear, was it not, sir, that the contact that you made with your neighbors was not a casual or cavalier one. It was, in fact, pursuant to contracts that you had in force with them at that time, precisely for the purpose of covering outages?

A Yes, sir.

Q And the concern, of course, when the Ryan and Kerr Dams went down, or I should say that the facilities at Ryan and Kerr went out, was that it might be possible that you would have to interrupt your interruptable loads of your industrial customers?

A Yes, sir.

Q But, in fact, that did not happen?

A No, sir.

Q When did you last interrupt an interruptable load of an industrial customer?

A In the supplying of electrical customers, that is what you're referring to?

Q Yes.

A I believe -- the best of my recollection, it would have been

in the winter of '73 and '74. Whether it has happened since then, I am not aware of.

Q Which customer did you interrupt?

A I wouldn't know. I think the normal procedure is to try to get the interruption uniformally, to minimize the impact on those customers with interruptable power, but I have never been in the operation end. I've never actually done any of this, but I believe that this is the procedure used, that they contact the customers and tell them what is pending and try to work it out to minimize their inconvenience.

Q As I understood it, in the winter of '73 and '74 when you had the Ryan and Kerr outages, you did contact your interruptable load customers then and told them that they might be interrupted?

A We did not have the outages in the winter of '73 and '74; they were this past winter.

Q '74 and '75?

A Yes.

Q So, all of this winter, that ended hopefully this month, you did not interrupt anybody's load?

A No, they were put on the alert once, because of impending freeze on the Missouri River, but that is all.

Q Now the previous winter you said that you did some interrupting of some interruptable loads?

A I believe we did.

Q Would have the Anaconda Company been included in that interruption?

A I am sure that they would have been had -- or if, in fact,

that there was one.

Q Do you know what the duration of the interruption was?

A No, I do not.

Q Do you have a ball park estimate of what, or if it was an interruption, of an hour or a week?

A Well, I would have guessed that it would have been a matter of hours, but I don't know. I would have to check the record to find this out.

Q Customarily, over the years past when you have had to interrupt loads, it has been a matter of hours, has it not?

A Normally, yes, sir.

Q Now, as I understand it, interruptable loads are sold to customers at approximately 1/3 the rate that a residential customer would have to pay?

A It is in that area, yes, sir.

Q And the reason for that, as I understand it, is that the loads are in a fact interruptable?

A They are part of our reserves.

Q Therefore, when you sell interruptable power, the person who buys it rather expects, should he not, that there will be occasions when the load is interrupted?

A Yes, sir.

Q That is why he is paying 1/3 what residential folks have to pay, because the residential folks should not expect any interruptions and the industrial folks should, isn't that right?

A Yes.

Q All right, now, has there been an occasion that you can recall

Mr. Hofacker, in your stint as the chief engineer of the Montana Power Company, in which you have, in fact, interrupted firm loads?

A Not voluntarily; when we had an emergency arise, they have been interrupted momentarily, but not voluntarily.

Q Sure, there may be an occasion when a line goes down some place, and then there is an interruption of that kind, but you haven't had an interruption of a firm load, have you, in your recollection as the chief engineer of the company, as a result of a deficiency in power?

A Not to my knowledge, I am sure that there were times when we went out and bought power to cover and to take care of our firm loads, but I don't recall any interruption of firm loads in recent years.

Q Indeed, to buy power is one of the ways in which you have, in fact, furnished energy to firm load customers over the years, isn't it?

A Yes, when the power is available.

Q In recent years, you had decided that approximately 30 percent of your available energy should be purchased energy, rather than generator, isn't that right?

A No, sir.

Q What is the percentage figure?

A The percentage of 30 percent was buying for not to exceed 3 years and up to but not exceeding 30 percent to forestall the installation of a plant.

Q Well, at any given moment in time, then, would it not be true, that you are purchasing 30 percent of your power from some

source other than your own generation?

A This amount of purchase would vary with the firm contracts we have, some of which run for a long period of time, others for short terms.

Q But the statement would be true, would it not, Mr. Hofacker, that at any given moment in time, you would have approximately 30 percent of the power that you are delivering to customers from purchased sources?

A This is not necessarily so, for the reasons that I mentioned before.

Q What would be the range of the power that you would be delivering to your customers, as between purchased and generated sources?

A Well, excluding the long-term firm contract with BPA that we had, and are in our second twenty year term, it could be essentially from zero.

Q Why do you exclude the BPA contract?

A Well, this is in our firm resources, so whatever percentage that would be of our load we would be taking, because of the contract, but this is a long-term, just like putting generation on.

Q Well, I am just asking you, Mr. Hofacker, if you would give us the percentage figures that would not exclude Bonneville or anybody else, of what portion of the load you were meeting was met by purchased power and what portion was met by generated power?

A There are probably times when there might be none from the purchased power that we are using to supply our load; we may

be exchanging that with somebody else, because we have enough of our own generation to take care of our load at that particular time.

Q Your own generation before Colstrip 1 comes on stream is how much, in terms of average energy?

A With the Bonneville Power Administration contract and the Hanford contract, this is close, I believe, to 700 megawatts.

Q Bonneville and Hanford are both purchased, aren't they?

A They are.

Q If you just look at your own hydro resources and your Bird and Corette plants, what is the total average energy that you have in those facilities?

A Our hydro facilities are -- I need to look at my table here -- in the 300 to 400 area.

Q 337, is it not?

A Right. Okay, and from the Corette unit we have about 85 percent of the 163 which amounts to about 140 -- 135 to 140.

Q That would then be a total of approximately 475 megawatts between the Corette and hydro units?

A Yes.

Q And that is all the generating sources that you have at this time, isn't it?

A Yes, sir.

Q Setting aside the small diesel unit down in Yellowstone Park?

A Yes, sir.

MR. BELLINGHAM: Excuse me, what was the total figure that you asked him?

MR. SHENKER: I said about 475.

Q Now, your total of resources in energy is 716 average, is it not?

A With the contracts, yes, sir.

Q All right; so the percentage that the 475 bears to 716 will give us the amount of energy that you deliver on an average from your own generated resources, would it not?

A Yes, sir.

Q And the difference between 475, and to make it easy, 700, is 225 megawatts, isn't it?

A Yes, sir.

Q And 30 percent of 700 megawatts should be 210 megawatts, wouldn't it?

A Yes, sir.

Q Now, doesn't that tell you, Mr. Hofacker, that on an average energy basis, that you purchase approximately 30 percent of your resources?

A Yes, when you take an annual average.

Q All right; now you were telling us on Wednesday of last week, in your direct examination, about the megawatt usage in some cities in Montana. The largest city in Montana is what?

A Billings.

Q And I think that you told us that Billings used about 97 megawatts in peak and 130 megawatts with refineries in peak?

A Yes, sir.

Q Now, that means, does it not, that the city of Billings, aside from the refineries themselves, uses about one-half of the power that the Anaconda Company uses from you, roughly?

A Oh, I think that is true for the city of Billings, yes -- no,

no, this is not true. This past winter the Anaconda Company was taking about 125 to 130 megawatts.

Q What is its contract?

A Its contract minimum is 135 megawatts, I believe, with -- in the current contract an increase plan to go up to 180 this fall.

Q Isn't the current contract with the Anaconda Company, as of July, to go to 212 megawatts?

A If it is, then I am in error in my statement.

Q Let's assume that the Anaconda Company contract with you was around 200 megawatts. For some time this year, the city of Billings was around 97 megawatts, and that is a little bit less than half of Anaconda, isn't it?

A Yes, sir.

Q Or if you take the Anaconda Aluminum Company's load (which I understand you do not furnish, the Bonneville Power Administration does), then the city of Billings would be using about one third of what the Anaconda Aluminum Company uses, is that right?

A Yes, sir.

Q All right, Mr. Hofacker, you told us what some of the other cities in Montana were taking by way of power, and I believe those figures that you gave us were: Butte with about 30 megawatts at peak?

A Exclusive of the Anaconda Company?

Q Yes.

A Yes, sir.

Q Missoula, around 90 megawatts at peak; Helena, about 37 megawatts

in peak; and Great Falls, around 80 megawatts in peak?

A Yes, sir.

Q And if we wanted to put Bozeman in, we'd find about 27 megawatts in peak, as well, wouldn't we?

A That is right, sir.

Q Okay, now those are figures which you testified to on Wednesday of last week, Mr. Hofacker, as taken from the FPC form that you filed, form 12, schedule 17, titled Your Large Customer Report?

A Yes, sir.

Q And Don Gregg put those figures together for you, didn't he?

A He did.

Q Now, do you have, Mr. Hofacker, either any statistics, figures, reports, or any independent recollection of your own as to whether those peak loads from those individual communities have substantially varied from the figures which you used, which I understand to have been 1974 figures, that's over the years?

A I am not sure that I understand your question.

Q We will take the city of Billings, for an example, and you tell us that the peak load for the city of Billings was something like 90 megawatts in 1974?

A Excuse me, 97, I believe, or something like that.

Q Yes, that is in 1974.

A Yes, sir.

Q Okay, now how has that varied over the years?

A Well, it has been a growing load in Billings. As this is very specifically, I would have to go back and look at the records.

Q Well, you couldn't look at the figures that Mr. Gregg gave you, because he didn't have the peak load for 1973 in those; he just had 1974, isn't that right?

A Yes, that is right.

Q But you could look at the average energy, for example, in Billings and tell us that it has grown from 58.7 megawatts in 1973 to 62.2 megawatts in 1974?

A Yes, sir.

Q What percentage increase is that?

A 58 to 62 about -- that was the numbers you gave me, wasn't it?

Q Yes, sir.

A About 8 percent or something like that.

Q Now let's take the city of Bozeman, for instance, from 1973 to 1974. That is an average of energy of from 13.4 percent to 13.4 percent, isn't it?

A 13.4 percent to 13.4 percent?

Q Excuse me, I didn't mean percent, although I said just that. I meant megawatts, of course.

A 13.4 to 13.4?

Q Yes.

A I believe that is what is on that list; if it is why that's --

MR. BELLINGHAM: If you have a list --

A I have a list, and that is what I am getting to.

Q Why don't you take a look at your notes on that?

A These are the notes that you gave back to me, that I didn't get rearranged.

Q Your notes on that, Mr. Hofacker --

A I have them.

Q And Bozeman's change was from 13.4 megawatts to 13.4 megawatts, right?

A Yes, sir.

Q That would be a change of zero percent?

A It would be.

Q And then Butte's change was from 16.9 megawatts to 17.4 megawatts, is that right?

A Yes, sir.

HEARINGS EXAMINER: What years are you referring to?

MR. SHENKER: 1973 to 1974.

Q What percentage of change is that, sir?

A Oh, let's see, about a 4 percent change.

Q About 4 percent?

A I guess it is more like 3 percent when I look at it.

Q Closer to 3 percent?

A Yes, sir.

Q Helena's change was from 22.7 megawatts to 18.8 megawatts, is that right?

A Yes, sir.

Q What percentage change is that?

A It is a drop of about 2 percent.

Q Well, let's see --

A It is about a 3.9 drop; 3.9 over 22 is --

Q 10 percent would be 2.2 megawatts --

A Excuse me, yes, sir, you're right. So we've got about 15 percent or something like that.

Q Well, I don't think that it is quite that much.

A Well, you got 3.9 which is about 15, I'd say, or pretty close.

Q Okay, minus 15 percent?

A Yes, sir.

Q And Great Falls went from 40.6 to 40.4, isn't that right?

A Yes, sir.

Q Essentially zero percent, isn't it?

A That's right.

Q And, finally Missoula went from 34.3 to 34.3, is that right?

A Yes, sir.

Q And that, I take it, is also a zero percent?

A Yes, sir.

Q You don't, by any chance, have a compilation of what the total load is of the six largest cities in the state of Montana?

A No, I didn't add those up.

Q When I checked my arithmetic, Mr. Hofacker, I get 186.6 megawatts for 1973 and 186.5 megawatts for 1974, does that look about right?

A The first column does. Now let me see here in this book -- oh, the first column was alright. I was just looking at the second one. I think that I have no problems with that.

Q You would agree with me, Mr. Hofacker, would you not, that it is essentially a zero change?

A For those two years, yes, sir.

Q Okay, now we have had some discussion with you, Mr. Hofacker, last week on direct examination, in which you described your procedure for drawing a base load, is that right?

A Yes, sir.

Q And your base load, I take it, consists of everything except your industrial resources or industrial load?

A Yes, sir.

Q The greater part of your base load comes from urban demand, does it not?

A I believe so, urban and industrial.

Q Yes --

A No, not industrial, just small industrial in the base load.

Q You would agree with me, would you not, Mr. Hofacker, that if we were drawing a base load from the growth in your system from 1973 to 1974, we wouldn't have any growth at all, would we?

A No, but it might be a mighty poor base to make a projection on, sir.

Q And for that reason you have gone back 20 years to start with 1952 and going to 1971 to draw your base load, haven't you?

A We have, yes, sir.

Q Now, Mr. Hofacker, what happens if you take your base load over a different number of years, for example, from 1963 to 1974? What's the growth then, compared to the 1952 to 1971 growth?

A Looking at the curve on Exhibit 9, the base load of 1963 versus -- was right on this compound curve, and '71 final, the actual historical base load was above that compound curve, so it indicates that it would have been, the base load to me, something in excess of 5.6 percent.

Q What would it be if you ran your base load from 1971 to 1974?

A It would be depressed from that amount.

Q I beg your pardon.

Q It would be depressed from that amount. If we went from 1970

to '74, it would be greater than 5.6.

Q The fact is, is it not, Mr. Hofacker, that depending upon which years you include in your base load, you can have widely varying percentages of increase, or, for example, taking those two years, no increase at all?

A Yes, sir, and that's the reason we look at many other factors to find out why that occurred.

Q In projecting your growth from 1975 onward, how have you taken into consideration the fact that, from 1973 to 1974, your growth in the six largest cities in Montana has been essentially zero?

A You will note from the graph on Exhibit 9 that the base load growth from '74 through '77 is essentially that.

Q Is essentially what, sir?

A Zero growth.

Q From 1974 to 1977?

A Yes, sir.

Q Well, translated for us, does that not mean, Mr. Hofacker, that between 1974 and 1977, you would need no more energy than you had in 1974?

A No, sir, because we have total load on top of that that we have to provide.

Q Looking only at the base load though, my statement would be correct, would it not?

A Yes, it would. It's a slight growth; it's very little.

Q Let's take a look again at some of the years that you could have used as a base. If you used the years 1963 to 1973, the growth would be 4.3 percent, isn't that right?

A '63 to '73?

Q Yes, sir.

A Well, again looking at Exhibit 9, it would indicate it may have been higher.

Q All right, let's talk about total load then, from 1963 to 1973; what would it be then?

A It could have been on the total load, yes, sir.

Q And if you're still talking about total load, then between 1968 and 1973, it would have been 3.9 percent, would it not?

A Yes, sir, and again in the year 1972 they discontinued 70 megawatts of sink load.

Q That's why that would show up so importantly if we narrowed the period to 1970 to 1973; for example, in those four years the growth would have been 1.1 percent, wouldn't it?

A Yes, but again we lost a block load from which we take off, and we start again with what the base load growth has been plus what the total loads that we are -- have firm commitments for ahead of us.

Q And it is certainly true, is it not, Mr. Hofacker, that if you took any of the following periods of time, 1973-1974, 1972-1974, or 1971-1974, that the base load would be lower than what you have projected on Exhibit 9?

A Yes, sir, and there are very good reasons why.

Q We'll get into those, too, Mr. Hofacker.

MR. SHENKER: May I have that material on the board marked as the next DNR exhibit to demonstrate the witness's testimony, please?

HEARINGS EXAMINER: Yes, you may. Would you want to

mark it; give her a pencil there.

MR. SHENKER: Are we on number 7?

HEARINGS EXAMINER: It would be DNR number 7.

MR. SHENKER: For illustrative purposes, we'll offer DNR Exhibit 7.

MR. BELLINGHAM: No objection.

HEARINGS EXAMINER: Very well. DNR Exhibit 7 is admitted without objection.

Q Then, Mr. Hofacker, in your direct examination last Wednesday, you next turned to the history of the development of Colstrip?

A Yes, sir.

Q It is true, is it not, sir, that you have been the chairman of the Steering Committee for the Colstrip project since the inception of the Steering Committee?

A Yes, sir.

Q And the Steering Committee, of course, consists of a representative of each of the Applicant participants?

A Yes, sir.

Q As I understand it, in December of 1971, all five of the present Applicants met in Spokane, which was not unusual, given the various associations through which the companies operate, and then had a look at whether you might want to build some resources together?

A Yes, sir.

Q At that time, you determined that you had a deficiency that you were concerned about, as an aggregate of the five companies, of approximately 600 megawatts for the year July, 1978, to June, 1979?

A Yes, sir.

Q At that time, Mr. Hofacker, you will certainly concede for me, will you not, sir, that there were a number of alternatives that the five Applicants could have pursued, had they chosen to do so, aside from Colstrip units 3 and 4?

A There were alternatives, although limited. It's like in any planning function; you start with your alternatives, and see what appears to be the best approach, and proceed on that course.

Q One of the alternatives, of course, was that the four non-Montana companies could have joined to build their own generating resources somewhere?

A The other participants at that time felt that they could not get a resource on time, in that manner.

Q I suppose the answer to my question is yes, and now you've explained your answer, is that right?

A Yes.

Q Now, tell me something about your explanation for that answer. Why is it that the other participants couldn't get a generating resource on time, on line, and you could?

A Because we already had a site.

Q You already had a site? Is it your testimony that none of the other Applicants had any sites then available where they could have proposed to do some building?

A They had sites they were looking at, but, as I recall their statements, the time of the studies necessary and the permits necessary would preclude their getting them on line in this '78 period.

Q Was there a utility siting act in Washington at the time?

A I don't know whether there was or not.

Q Was there one in Oregon at the time?

A I'm unaware; I know there are now, and I don't know the dates that they became a fact.

Q The Pacific Power and Light Company also includes California, Idaho, and Wyoming. Were there utility siting acts in each of those states at the time?

A I doubt that there were.

Q There was no utility siting act in Montana at that time, was there?

A No.

Q Then, in addition to the alternative of looking for a resource which the other four Applicants could have built, of course, there was a number of combinations and permutations among them, so that two or more of the Applicants could have been building joint generating facilities, too, isn't that right?

A Certainly.

Q For, indeed, each of them could have been building a generating facility, if they thought they needed it?

A Sure.

Q And, of course, in that each would be included the Montana Power Company itself?

A Yes, sir.

Q And I think you also told us that one of the reasons for concern, as to a possible deficiency among the five Applicants taken together, was that there were delays that had been experienced in other plants that were being planned, is that

right?

A Yes, sir.

Q And one of the delays was the loss of a nuclear that had been originally proposed for the Eugene area?

A Yes, sir.

Q Who was going to own that plant?

A It was going to be a jointly owned plant. As I understand it, Eugene Water Board was the sponsor, but I think there were other parties to it.

Q Were any of the other four Applicants among the parties?

A I'm certain that they were; how many of them were involved I don't know at this time.

Q As a result of the decision by the appropriate bodies in the Eugene, Oregon, area that there would be no such nuclear plant allowed there in the time frame, certainly, that had been proposed, the participants proposed for that project had to go to the drawing board and look for something else, right?

A That is my understanding, yes.

Q And that, of course, is the ordinary planning process, is it not, Mr. Hofacker?

A It certainly is.

Q If you plan for a particular facility, and then it turns out you can't use that facility, you go back to the drawing board and plan for something else?

A Yes, sir.

Q And that's what you were doing in Spokane in 1971?

A Yes, sir.

Q That, of course, is precisely what you would do now, if

tomorrow you were instructed finally and irrevocably that you could not build Colstrip units 3 and 4?

A Yes, sir.

Q Now, you told us one of the reasons that you thought the Colstrip alternative was an attractive one in 1971 is that you had already established a site?

A Yes, sir.

Q Mr. Hofacker, we were, of course, talking about your plans for Colstrip units 3 and 4, were we not?

A Yes, sir.

Q So, your testimony, I take it then is that in December of 1971 you had already established a site for Colstrip units 3 and 4?

A We had a site established for Colstrip 1 and 2 that was capable of handling 3 and 4, and therefore logical to be the considered site for 3 and 4.

Q You had been planning already, had you not, in 1971 for the building of such a 700 megawatt facility someplace around the Colstrip area?

A No, sir.

Q Do you recall, Mr. Hofacker, our discussion on Friday with respect to Exhibit C to your 1973 Long-Range Plan? That was a report dated December 31, 1972, from the Western Systems Coordinating Council?

A Yes, sir.

Q And you'll agree with me, will you not, sir, that by the year 1972, surely, you were reporting to that Coordinating Council the provision of Colstrip 3 and 4?

A The possibility of Colstrip 3 and 4, yes, sir.

Q And you will agree with me also, will you not, Mr. Hofacker, that by April of 1972 you and others, who made a reply to the Federal Power Commission on Docket No. R362, entitled Reliability and Adequacy of Electric Service, in response to Order No. 383-2, reported as to what your plans were for additional facilities?

A I think that can be interpreted, possibly, as what your planning is, rather than the plans, because they weren't solid at that time.

Q And, of course, that particular document you had labeled as Exhibit D in connection with your 1973 Long-Range Plan?

A Yes, sir.

Q You will agree with me, will you not, Mr. Hofacker, that in that particular document, you did, indeed, advise the Federal Power Commission that you were planning a couple of 700 megawatt facilities in the time frame that we have been discussing for Colstrip units 3 and 4?

A I'm sure that we did. Seeing the document, I would think that there would probably be some qualifying remarks somewhere in there such as we did with the WSCC.

Q Tell me about that now, Mr. Hofacker. What was the nature of the qualifying remarks you made with respect to the 1972, December 31, report to the WSCC?

A The ones I believe I read Friday when you showed me that copy, that if 3 and 4 do not materialize, we would try to build a smaller unit in, what, 83-4-5 or some period in there.

Q So what your qualifying comment was then, I take it, that you were planning, in 1972, the building of a couple of 700

megawatt units in Colstrip, Montana, but if you didn't go ahead with those, then the alternative you were planning was a 350 megawatt unit, just for the Montana Power Company, in the same area?

A At the time we put in that report, we were in the status of studying the possibility of the two 700's.

Q Did you say that in your report?

A We did not say that in the report; however, that statement about the smaller one indicates that it was not proof positive that they were going to be built.

Q Well, of course, not until you got your permission to build could you have proof positive, could you?

A Yes, sir, and in 1972 we didn't have any siting permit either -- siting law.

Q But you did have, however, in 1972 a Clean Air Act in Montana in which you had to get a permit of some kind from the Department of Health or the Board of Health?

A That is correct.

Q You'd applied for that kind of thing in connection with the Colstrip units 1 and 2?

A Yes, sir.

Q So you certainly couldn't have proof positive until you got those permits, could you?

A You're right.

Q You will agree with me, will you not, Mr. Hofacker, that Exhibit D to the 1973 Long-Range Plan consists of material that predates the material that was included in Exhibit C, since the first of them was dated April 1, 1972, and the other

was dated December 31, 1972?

A Yes, sir.

Q What kind of a qualifying phrase do you think you put on the material included in Exhibit D to your Long-Range Plan?

A I would have to see that exhibit to know.

Q Do you have a copy of that one with you?

A I'll have to go get it from my other brief case.

Q Why don't you look at mine?

A Okay.

Q I'm handing you Exhibit D to your Long-Range Plan of 1973. I think page 48 is where you want to look, Mr. Hofacker.

A Okay. Page 48, in 1978, it says 700 unit X. It doesn't even state where it was going to be.

Q Whose company is supposed to be building the plant?

A Montana Power Company is the sponsoring company, yes, sir.

Q What type of unit?

A It says a thermal, 700 megawatt.

Q What's the commercial operation date?

A July of '78.

Q That's the same commercial operation date that you had in Exhibit C, the Western Systems Coordinating Council report that was added to the 1973 Long-Range Plan, too, isn't it?

A Yes, sir.

Q That's the same commercial operation date that you had in the application you filed for this proceeding, isn't it?

A Yes, sir.

Q Was there any other qualifying phrase that you put into that report?

A Saying it was unit X says we didn't know where we were going to be, apparently, or what it would be called. That has been a procedure we've used in other reports where you say an X; this is one that is in the planning stages and not been resolved. You'll notice going on down the list, there are some others, plant X, and unknown, that type of thing.

Q Well, the unknown refers to the name of the plant, does it not?

A Yes, sir, and that normally has to do with where it's going to be.

Q The name of the company and the fact that it's in a particular subarea of the Northwest Power Pool and the type of the unit and its capability and its commercial operation date are all there without qualifying phrases, aren't they?

A They are.

Q When you met with the other four participants in Spokane in 1971, did you tell them, at that time, that you had already completed a number of studies on Colstrip units 1 through 6?

A I don't recall so informing them.

Q Of course, you knew that that was the case at that time, didn't you?

A That we'd made studies 1 through 6 prior to that date?

Q Yes.

A I can't answer that; I don't recall that we had studies prior to that.

Q You don't recall Mr. Davenport's computer runoffs that considered various kinds of alternatives that included, among other things, Colstrip units 1 through 6?

A In 1971?

Q Yes, sir.

A There may have been something like that in connection with 1 and 2; I just don't bring them to mind.

Q Let me see if I can refresh your recollection a little bit, Mr. Hofacker. You recall, don't you, sir, that before you even built Colstrip 1 and 2 there were a number of site studies conducted to determine what the best economics dictated?

A Yes, sir.

Q And among those economic analyses, there were some analyses begun in August of 1970, stretching on for another year, that included an analysis of the Colstrip units 1 through 6, remember that?

A I remember such a study. I don't remember the dates you're telling me.

Q The dates of the studies?

A The dates of this period of study; I knew there was a study going on, and I remember a study in this area.

Q They were kind of big computer volumes that Mr. Davenport kept in his filing cabinet there in his office.

A Yes, I know there were big files.

Q Yes, there were, oh, 9, 10, 11, 12 different economic alternatives that were being considered in the various computer studies, do you remember those?

A Is the study you're talking about the one having to do with economics of various sized units for the Montana Power Company?

Q Yes, sir. I think the Puget Power and Light Company got in on some of those studies, too. There are various percentages assigned, for example, 25 percent, Montana Power Company;

50 percent, Montana Power Company, depending on whether it was Colstrip 1 and 2 or 3 and 4, do you remember those?

A I remember studies like that; I don't remember them being that early--is where I fail to recall them.

Q Have you reviewed those volumes from Mr. Davenport lately?

A No, I have not.

Q Have you reviewed Mr. Labrie's depositions where we went through those volumes, or some of them, page by page?

A I read his deposition; I did not study it.

Q Well, you recall reading that deposition, don't you, about the studies that were being done, including those beginning August 3 of, I believe it was, 1970, through Colstrip units 1 through 6?

A It may very well be.

Q Now you told us that, as a result of that meeting in December of 1971, you agreed among the other participants to make some reconnaissance studies on unit size, on transmission, and on electric stability, specifically for the Montana Power Company on electric stability?

A Yes, sir.

Q And you made those studies, did you not?

A We did, over the next many months.

Q So that about eight months later, four of the five companies got together and signed an agreement to proceed with Colstrip units 3 and 4?

A Proceed to study further; it appeared it was worth spending some more dollars to refine these studies and make sure that we were right.

Q Well, in connection with the studies that you were doing, did you inform anybody at the Western Systems Coordinating Council or at the Pacific Northwest Utilities Conference Committee that you were still only studying the prospects, and they shouldn't consider these as plans that were underway?

A I don't recall if I did one way or the other. I'm sure they were aware of what was going on. I'm not sure how the procedure was to tell them this.

Q In any event, you know, don't you, Mr. Hofacker, that the Pacific Northwest Utilities Conference Committee reports, such as the West Group Forecast, began to list Colstrip units 3 and 4 by 1972's collection of data?

A Because we were seriously studying them, yes, sir.

Q So the West Group Forecast then, I take it, in your view, includes all of the alternatives that are being seriously studied?

A Yes, sir.

Q Now, it is true, is it not, Mr. Hofacker, in the plans that the various utilities make, in cooperation with each other, that the most definitive collection of data for people in the West Group comes out of the West Group Forecast?

A Yes, sir.

Q You went on to tell us that by December of 1972, your studies were pretty well summarized, so that in January of 1973 still another contract was signed among the four participants for Colstrip 3 and 4, is that right?

A To extend this further, yes, sir.

Q What you were extending further by January of 1973 was to pre-

pare the actual engineering for Colstrip 3 and 4?

A No, sir, it was to prepare the environmental impact analysis with whatever engineering was necessary to make that study possible.

Q Is that not the reason that you hired the C. T. Main Company in January of 1973, to do the engineering work in connection with the transmission lines?

A Only that engineering work necessary to provide the proper data for the environmental impact analysis.

Q Who's supposed to build the transmission lines of two 500 kilovolt single circuit lines from Colstrip west?

A Who is supposed to build them?

Q Yes.

A The participants are going to build them.

Q Well, you don't have a contractor selected yet, is that right?

A You mean do we have a contractor?

Q Yes.

A We now have Charles T. Main as the constructor, contractor, and engineer.

Q As the contractor, constructor, and engineer?

A Yes, sir.

Q That's the same C. T. Main Company?

A Yes, sir.

Q And, of course, that's the same company that bid on the job of doing the environmental analysis in connection with the transmission lines, isn't it?

A They're one of them, yes, sir.

Q And there were a couple of others, Ebasco and United Engineer-

ing, I believe, were a couple of others.

A Yes, sir.

Q You decided to award the contract for the environmental analysis to the Westinghouse Environmental Systems Department?

A Yes, sir.

Q So in January of 1973, you awarded an engineering contract to C. T. Main and an environmental analysis contract to the Westinghouse Environmental Systems Department?

A Yes, sir.

Q The reason that you chose the Westinghouse Environmental Systems Department rather than C. T. Main to do the environmental work, in part, was that you wanted Westinghouse to do the environmental analysis for the power plant, too, isn't that right?

A Yes, sir, we selected them, because they had had experience in the west on environmental impact analysis.

Q And you wanted them to do the environmental work for the whole project, the power plant, as well as the transmission lines?

A Yes, sir.

Q Then in April of 1973, having learned of the passage of the Montana Utility Siting Act, you determined that it was time to try for a permit, is that right?

A Yes, sir.

Q Now, before that time, you had already instructed the Westinghouse people to proceed with their environmental analysis and the C. T. Main people to proceed with their engineering on the transmission lines?

A Yes, sir.

Q And before April of 1973, you knew, did you not, that the bill had been introduced in the Montana Legislature to enact a utility siting act?

A Yes, sir.

Q Were you involved in any presentations made by the Montana Power Company with respect to that particular Siting Act?

A No, sir.

Q Did anybody keep you informed as to the progress of that bill through the Legislature?

A I heard progress reports from time to time, yes, sir.

Q What did you hear?

A That there were good and bad aspects of it, in our view, in some things, as to the idea of the fees, limitations, restrictions.

Q Didn't the folks representing the Montana Power Company in the Legislature at that time know that you in the engineering department had underway some plans for building a couple of new power plants which might be affected by the Siting Act?

A Yes, sir.

Q Therefore, as part of their job, it was important to keep you informed as to what the legislative developments might be?

A Certainly.

Q And similarly, it was important for you to keep the legislative representatives informed as to what your progress was, so that they would know what to be alert to in the Legislature?

A Yes.

Q But by May of 1973, your original planning had to be revised,

didn't it, because you originally had not contemplated the enactment of that Utility Siting Act?

A Not at the outset, yes, sir.

Q Tell me what revisions you made in your plans as a result of the enactment of the Montana Utility Siting Act of 1973?

A Revisions in our plans, I'm not certain what you allude to. We knew that the time element was going to be tighter with the Siting Act than the time required to get the permit.

Q How much tighter?

A Pardon.

Q How much tighter?

A Well, by -- what we hoped for was not less than a year tighter than it was, but it turned out considerably longer, of course.

HEARINGS EXAMINER: When you get to a convenient place we'll adjourn for lunch, Mr. Shenker.

MR. SHENKER: Just a couple more questions and it'll be a good spot to stop, Mr. Davis.

HEARINGS EXAMINER: Very well.

Q Well, you have known all along, have you not, Mr. Hofacker, that it would be necessary to have an environmental impact statement prepared, both on behalf of the state of Montana, whether it be the Department of Health or someone else, and the United States government?

A That is the reason we had hired Westinghouse in the first place, because of the federal government regulations that we knew had to be taken care of.

Q And you thought that Westinghouse might be able to put together an environmental analysis that would be the background material

for an eventual environmental impact statement that would be issued by you to the state or to the federal government?

A Yes, sir.

Q But in June of 1973, when you filed your application, at that time the Pacific Power and Light Company had not yet joined you as a full-scale contractual party to Colstrip 3 and 4, had they?

A They had not.

Q Nevertheless, the Pacific Power and Light Company was named as one of the parties in the application, wasn't it?

A I was going to say you couldn't prove it by me; I don't remember that they were named as a party, but if you have read the application, they must have been.

Q Let me show you to make sure, Mr. Hofacker, on page 81 of the application, you do include the Pacific Power and Light Company, do you not, sir?

A Yes, sir, at that time there'd been no percentage agreed to by them as far as ownership, I'm sure of that point.

Q I beg you pardon. I didn't hear that last statement.

A At that time, there had been no agreement by them as to percentage that they would want to own. That came some six weeks later.

Q How was it that you informed the Department of Natural Resources, in the filing of that application, that the ownership of Colstrip 3 and 4 would include a 10 percent interest of the Pacific Power and Light Company if that had not been determined until six weeks later?

A Doesn't it say something that the proposed percentage ownership,

something of that -- I must be wrong.

Q I don't see the word proposed there on page 81 of the application, do you?

A I do not.

Q Was that just a pretty good sneak preview of coming attractions?

A That's what had been discussed, but Pacific had told us they had to go back and study further, and they let us know in the latter part of July that they would, in fact, be a party for that much.

Q That was some time after the actual application had been filed?

A Yes, sir, I think late July of '73.

MR. SHENKER: I think we're at a good stopping place, Mr. Davis.

HEARINGS EXAMINER: Very well, we'll adjourn until 1:30.

(HEARING RECESSED AT 12:10 P.M.)

(HEARING RECONVENED AT 1:30 P.M.

HEARINGS EXAMINER: Are you ready, Mr.Shenker?

MR. SHENKER: Yes, sir.

HEARINGS EXAMINER: Mr. Bellingham?

MR. BELLINGHAM: Yes, sir.

HEARINGS EXAMINER: Very well, we will proceed.

MR. SHENKER: A couple of things for the record, Mr. Davis -- on page 160 of the prepared transcript which Mrs. Blacker has furnished for us, is the reference to the request made that the Applicants advise us whether the excerpts from the minutes of their meetings of the Board of Directors are verbatim or summaries, we still need to know that. Secondly, at the earnest request of a member of the Board of Natural Resources and Conservation, the record, of course, should show that Mr. David Drum was present from time to time this morning and is present again this afternoon.

HEARINGS EXAMINER: Yes, the record will so show. It will show that Mr. David Drum, Board member, appeared at the hearing at 9:50 and stayed here until 12:07 and he is back at 1:30. Regarding that first matter that you requested, about the summary or verbatim nature of the transcript, I guess someone is looking into that?

MR. ROSS: Yes, I will check into that.

HEARINGS EXAMINER: All right, thank you, Mr. Ross. Mr. Shenker, are you ready?

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Cross, by Department of Natural Resources

By Mr. Shenker (Cont.):

Q Mr. Hofacker, you will recall, sir, last week, that Exhibit 3 was introduced during your direct examination subject to its being stricken subsequently in this proceeding, depending upon what showing is made by the other applicants and their particular loads and resources. Have you, Mr. Hofacker, personally, caused a study to be done, of whatever nature, to analyze the loads and resources of the other four applicants?

A No, sir.

Q Have you reviewed the exhibits that have been marked by the Applicants in this proceeding in order to do your computations to see if the loads and resources, as you prepared them on Exhibit No. 3, comport with the individual loads and resources of the five applicants?

A I did not do that in detail; however, some of my people were doing this.

Q Do you believe that it is possible to do so from those exhibits that have been marked in the proceedings thus far?

A We thought so. We did it.

Q Let me ask you, then, with respect to Exhibit No. 3, Mr. Hofacker. That purports to be the total system net resources of all five participants, does it not?

A Yes, sir.

Q And that would include, for the Pacific Power and Light Company, its loads and resources in all six of the states in which it operates?

A Yes, sir.

Q Do you believe that there are marked and furnished to date exhibits from the Pacific Power and Light Company for their loads and resources outside the State of Montana?

A I understood that there were, but I'm not positive of this fact.

Q Have you seen them yourself?

A I saw the worksheets from Pacific. I did not see the exhibit, to my recollection.

Q You would agree with me, would you not, that in order to come up with the total figures that appear in Exhibit No. 3, we would have to have the individual figures from Pacific Power and Light Company for all six of the states in which it operates?

A Yes, sir, and in checking with our people, the resources did agree with the exhibits, according to my people in Butte.

Q I'll talk about those in some detail in a moment, but, sir, I did want to ask you the question that was raised during the course of your direct examination by me in connection with Exhibit No. 3, and that is, you had described, shortly before the offer of this exhibit, the meeting that had occurred in Spokane, Washington in December of 1971. I want to ask you, sir, whether Exhibit No. 3 reasonably reflects the understanding or state of mind that the participants in that meeting of December 1971 had with respect to the projected loads and recources of those five participants?

A It is reduced from that amount shown then.

Q It is reduced?

A Yes, sir.

Q Why is that?

A Conservation, apparently. Each of the parties will have to explain why they reduced their load projections. We reduced ours, as I mentioned before lunch, in recognition of what happened fron '73 to '74, the economic conditions, and so forth.

Q How much did you reduce yours from December of '71 to date?

A I would have to go back and look at the tabulations, sir, to know that.

Q Approximately, if you can recall?

A It may be -- I am sure it would have to reflect the zinc load that was lost of 70-some megawatts. Now, whether there were pluses and minuses that balanced off beyond that, I'd have to look at my numbers, and I think maybe I can here.

Q All right, do that.

A The 1975 - 1976 -- looking at my numbers, would be down about 65 megawatts of peak.

Q That's from 1971 to 1975?

A I take that back, that was a revision in 1973. Just a minute -- It's about 70 from the previous, down about 70 megawatts on the peak, 1975, 1976.

Q From when to when, Mr. Hofacker?

A From 8/1 of '72 to now. Wait a minute, I've got the latest one here -- 75/65 --yes, sir.

Q From August 1 of '72 until the most recent one that you have, you're down about --

A 2/25/75 -- it's down from -- 75/75 -- and that would be the peak of 9/72 -- no, it's practically on, going back to that

one. Our current 2/25 forecast, peak for 1975, the December, would be 967 and 8/1/72, December of '75, is forecast to be 972.

Q 972?

A 972, sir.

Q What shakes have there been up and down since August of '72, and February of '75, if any?

A Well, we increased that, not because of base loads, but because of the block loads; on 3/29/73, we increased that about 26 megawatts to 993, and February 1st of '74, again, because of forecast by the Anaconda Company, we increased it up to 1037, which is about 65 megawatts over our 8/1/72 forecast, and then back in 2/25/75 to 967, which is five megawatts less than we had in 8/1/72.

Q You skipped the November 1974 forecast. Was there any change made between February and November of 1974?

A There may well have been -- just a moment here. We had increased the Anaconda Company again, based on their information to us. There was going to be -- I can't find that at the moment --

Q Let me see if I can refresh your recollection. The first load forecast that you have within the last decade is one dated April 19, 1966?

A Yes, sir.

Q By S. Barker?

A Yes, sir, Stewart Barker.

Q And that showed a peak of 1,092 megawatts?

A For what year?

Q 1975/76.

A I have 1,043, I believe.

Q That would be for 74/75.

A Yes, sir, yes, sir, 1,092 for '75.

Q And staying with that same year, and moving to the forecast by E. L. Hedegaard, of August 1, 1972, as revised on February 2, 1973, that change for the Montana Power Company downward for 1975/76 was what?

A This would be 8/1/72 you're talking about?

Q Yes.

A Okay, In 1975/76 to 9.72.

Q Okay, so it went down from 1,092 to 972.

A Primarily because of the Anaconda zinc down and the Milwaukkee Railroad, U. S. Indian Service, the Glasgow Air Base, the BNP Railroad, and some mining properties sold in Idaho.

Q Whatever the reasons may have been, that's what happened from those two forecasts, right?

A Yes, sir, in our block loads.

Q Then you moved from February 2, 1973 revision of the August 1972 forecast to the February 1, 1974 forecast done by Rob Stuart for the year 1975/76 and you have moved back up from 972 to 1037?

A Yes, sir.

Q But still less than the 1,092 that was forecasted in April of 1966?

A Yes, sir.

Q And then, if you move nine months further to November of 1974, you're back down again to 1,007 from the 1,037?

A Yes, sir.

Q And then, if you move still further to February of 1975, forecast, again, by Rob Stuart, was it not -- ?

A Yes, sir.

Q What does that give you?

A Well, that's the current one that's in -- the one that's in our exhibit here.

Q Yes, what's that?

A 967.

Q Down just a little bit from where you were in November?

A Just a little bit.

Q But if we take the fluctuation in the extreme, which would be where you were in April of 1966, to the lowest one that you have projected over the last ten years, it would be a fluctuation from 1,092 megawatts down to 967 megawatts?

A Yes, sir.

Q That's a little over 10% fluctuation downward?

A Yes, sir.

Q Now that just speaks of the Montana Power Company itself, and I was trying to get a handle on Exhibit No. 3, which speaks for all five of the applicants. I take it, then, that since the Montana Power Company has revised its load forecast over the period of time we have discussed, in the manner that we've just discussed, that it could not have been the case in December of 1971 that what is reflected on Exhibit No. 3 in this proceeding today is what everybody had in mind as their loads and resources?

A No, but if you recall, sir, I said it approximated a deficiency

in energy at that time of about 600 megawatts. You can see the deficiency now is about 467. It's varied, but it's still sizeable.

Q A 25% reduction in the projected deficiency?

A Yes, sir, and the units are now a year later, too.

Q 1978/79, I take it, we all agree, is not a year in which the Colstrip 3 and 4 units are going to be of any benefit?

A Right.

Q Is there, Mr. Hofacker, a reduction in resources as well as a reduction in load from what was understood in December of 1971?

A There may be because of contracts that have varied or changed. I'm not certain of that.

Q You know of no analysis that has been made on that subject?

A Not personally, no, sir.

Q In your particular handwriting on the copy of Applicants' Exhibit No. 3 which you have in your notes the word "net" has been written in for both peak and energy, has it not?

A Yes.

Q Why is that?

A Because this was not the final sheet. The exhibit, as put in the application, says "net," Exhibit 3.

Q I see. In other words, the exhibit as originally prepared didn't show that it was the total system net resources and the total system for both peak and energy in net that was being discussed?

A Yes, sir.

Q What's the alternative to net resources?

A Well, the alternative would be gross resources, but net are

those that are available to carry load.

Q Why would there ever be any calculations about gross resources?

A Because the manner in which you have to use maintenance, particularly in energy, when you take a thermal plant down, you lose energy and you have to deduct energy at that period of time.

Q What do gross resources include that net resources do not include?

A They include what you might call the nameplate capability. As an example, our Corette unit has 180-megawatt capability for only four hours and an average net capability of about 163 megawatts for 24 hours, but not for twelve months at 24 hours, so the net you can get in an average year is about 140 megawatts and that's all that is going to be available to you to carry your load.

Q When the Corette unit is operating at 163 megawatts, how would that be reflected in your tabulations of net resources?

A It would be more reflected in the peak than it would be in the average energy. It would be how many hours it ran at 163, how many available, but you'll have to take it down some time during the year for maintenance and so forth.

Q In other words, if we looked at your Exhibit No. 5, which is the Montana Power Company annual peak for the Corette station, we find a listing of 180 megawatts?

A Yes, sir.

Q Is that a gross or a net figure?

A That's a net for four hours, but not a net for energy.

Q I understand. We're looking at an exhibit that deals with

peak?

A Yes, sir.

Q Is there a figure larger than a 180 megawatts at which the Corette station ever operates?

A Well, in order to have 180 net out, you're going to have to have enough power to take care of your station power, your pumps, and so forth. It's probably close to 190, as far as gross capability.

Q So the Corette station has to generate, of course, power that never gets out of the Corette station?

A And that's reflected in the heat rate that you apply against that plant.

Q Then is it your testimony, Mr. Hofacker, that the actual capacity of the Corette station, for example, is 190 megawatts?

A Thereabouts.

Q What's the nameplate rating of the Corette station in megawatts?

A I believe it's 180 for four hours, 163 for continuous load.

Q Do you have with you, Mr. Hofacker, a copy of Exhibit No. 2-A in this proceeding?

A What does it purport to show, sir?

Q It's entitled "Pacific Northwest Thermal Plants of Hydrothermal Program Schedules."

A No, I don't have that.

Q I notice as we ran from Exhibits 1 through 13 in connection with your direct testimony last week, we omitted Exhibit No. 2-A, and I wonder if you could look at that for me? You're familiar with it, are you not, sir?

A I was aware of it, yes, sir.

Q For example, Mr. Hofacker, how many megawatts of energy does Exhibit 2-A say are going to come onstream in the year 1979?

A It does not say what the energy -- these are the capabilities of the unit, but energy is not so listed.

Q So it would be potentially peak that comes on, is that right?

A This is the peak capability, yes, sir, but all of these units being thermal, probably 75 to 80% of them will be available with energy.

Q From that particular exhibit, we can't tell how much of the individual capacity will be peak or energy, can we?

A You can glean a pretty good number from it, yes, sir.

Q Based upon experience, of course, thermal units are generally built and intended to be operated for energy rather than peak, aren't they?

A Yes, because there's more energy generated than the load factor of your load, so that you have more energy, a better capability for producing energy than the load factor of your load normally requires, other than in electrolytic types of industries, and so forth. They require more than a thermal plant could put out.

Q Such as?

A Electrolytic refinement of copper -- they usually run at a load track in excess of 90%.

Q Like the Anaconda Copper Company?

A Yes, sir.

Q Or like the electrolytic process for making aluminum?

A Yes, sir.

Q What is the load factor at which you think the Colstrip units

are going to operate?

A We have put them in our resources at about 85%, which is pretty high.

Q In your experience, what's the load factor at which Corette operates?

A Not that high, but it was not intended to, either, sir, because of the 180 for peaking that's in there.

Q Looking at Exhibit 2-A, that only gives you an idea of what the overall capacity is of the units that will come onstream?

A Yes, sir.

Q If you take the year 1979, would you not assume that that exhibit has been prepared the way the rest of your exhibits have been prepared, that the year 1979 refers to the fiscal year, July 1, 1979, to June 30, 1980?

A The date you're referring to is under the heading, "Probable energy date," of August 1979, and this is based on the milestone formula that is in the west group forecast.

Q Then you would believe, would you not, with respect to 1979, the units would come on after August, that we're talking about the year 1979 - 1980, the way you've described those years?

A Oh, for peaking, yes, sir.

Q Can you show us, Mr. Hofacker, where, on Exhibit No. 3, is the allowance for the additional peaking for energy that is scheduled to come onstream in the year 1979, according to Exhibit 2-A?

A It would have to be in the total system resources as they're tabulated there.

Q Let me see if I read Exhibit 3 correctly. It shows, does it

not, that between 1978 and 1979 and 1979 - 1980 under "Total System Resources for Peak" there will be an additional 121 megawatts coming onstream?

A That's what it says.

Q And in terms of the total system resources between 1978 - 1979 and 1979 - 1980, it shows that there will be an additional 97 megawatts coming onstream? Is that right? No, excuse me, 49 additional megawatts coming on stream?

A Did you say from 1979 - 1980?

Q I meant to be saying from 78/79 to 79/80. 49 megawatts energy?

A Oh, I was watching the peak here. Forty-nine, yes, sir.

Q Forty-nine additional energy megawatts and 121 additional peak megawatts?

A Yes, sir.

Q How many additional megawatts does it show coming onstream in 1979 on Exhibit 2-A?

A It shows considerably more than that, but Exhibit 2-A is not purported to show what the resource situation is in 1978 - 1979 because as I have alluded to before, many of us have short-term contracts from a source that either has no more surplus available at that time or with a unit coming on, you do not need it at that time, so the purchase contracts undoubtedly make up this difference.

Q Well, let's find out what the difference is first.

A Well, the difference is sizeable.

Q What is the amount of megawattage scheduled to come onstream in 1979 according to Exhibit 2-A?

A 2300, according to this, as far as capability.

Q Now, let's look at the year 1982. Tell me how many additional megawatts are supposed to come onstream in that year?

A 3750 if my numbers are correct.

Q And between the years 81/82 and 82/83, under "Peak" on Exhibit 3, there is a difference of 1,435 megawatts, is there not?

A Yes, sir.

Q And inbetween those two years, under "Average Energy," there is a difference of 994 megawatts, is there not?

A Yes, sir.

Q So you would agree with me, would you not, Mr. Hofacker, that we certainly cannot assume that the additional megawatts that are forecasted on Exhibit 2-A have been cranked into Exhibit No. 3 without making allowance for something that has disappeared, such as purchase contracts and things of that sort?

A Yes, with this qualification, that these units here have partners other than the five participants in our project, every one of them do.

Q Let me ask you about that, then. How is it helpful to us to know what thermal units are coming onstream in accordance with Exhibit 2-A if those are not resources available to the participants themselves?

A This was devised to show that Colstrip is just a portion of the entire plan. That was the whole reason for the exhibit.

Q That Colstrip is just a portion of an entire plan for bringing in thermal-generated facilities for a lot of folks other than the five participants here?

A Yes, sir, we're talking about the Northwest, of which Montana

is a very integral part.

Q And obviously, the five participants with whom you're dealing in this proceeding do not fill the field when it comes to megawattage used or needed?

A They only have portions of these plants that are available to them through purchase contracts.

Q So when we talk about the resources that are coming onstream available over the years between now and 1985, we're talking about resources that are available for people other than the five participants, too, aren't we?

A On a reasonable planning basis you have to.

Q And in order to understand how those resources will fit into a regional plan, we have to know what the needs are that are going to be met by the non-participants in this proceeding, don't we?

A I suppose so. I'm not sure it's as pertinent as you make it, but it may be.

Q Well, let me use a hypothetical example, just to make it clear in everybody's mind. Let's use approximately the figures for 1982 coming onstream of megawatts as reflected in Exhibit 2-A. Let's say there are 3,000 megawatts coming in in a hydrothermal program in the Pacific Northwest, right, and let's say that the folks who have an interest in all of those units needed only 2,000 of the 3,000 megawatts. That sounds like a surplus of about a thousand megawatts, right?

A Yes, sir.

Q Now, if that were true, that would certainly tell us something, wouldn't it, about the resources that might be

available by purchase of surplus by the participants in this proceeding?

A Only if you compared it with the needs that you would apply against that surplus by the other parties.

Q Yes, that's what I asked you to assume, that there are 3,000 megawatts coming on and the folks who have some interest in them only need 2,000, and it sounds like a surplus of a thousand, right?

A It sounds like a surplus, but as we've said before, there wasn't a surplus there.

Q We'll get into some of the details of that, but I just want to make sure we understand that what we're talking about when we look at resources that are available to people other than the participants is only helpful to us if we know the needs of those folks other than the participants, isn't that true?

A Yes, sir.

Q I believe you were telling us, in connection with your direct examination, Mr. Hofacker, that the Pacific Northwest Coordination Agreement looks at the Pacific Northwest as if it were a single utility reserve into which allocations are made, is that right?

A That's the first step.

Q Now, allocations suggest to me that there's somebody doing the allocating, is that what you mean?

A By contract. It is being done in accordance with a formula that has been agreed to, by contract.

Q Are you talking about the allocation of hydro power from Bonneville?

A I'm talking about the allocation of reserves to the parties after the total chunk of the reserves has been calculated.

Q And that would mean reserves from wherever the parties may get them?

A Yes, sir.

Q And when the Pacific Northwest Coordination Agreement is complied with by the individual parties, who accept some formula for allocation, it's up to the individual parties to determine where they will get their reserves, is it not?

A Yes, sir.

Q So therefore, you, as the Montana Power Company, for example, will be free to get your reserves from contracts for purchase or from additional generating resources such as hydro or gas turbine or anything you decide upon, is that right?

A To the extent they are available, yes, sir.

Q And that, in fact, is exactly what you have done, is it not, when the allocations of reserves are made to you? You look about and see where you can get your reserves and that's how you provide for them?

A We look for the most economical means of providing those reserves.

Q It's true that higher reserves come from coal-fired units than from other kinds of units, isn't it?

A Higher than hydro, yes, sir.

Q And the reason, I think you told us during your direct examination, for that, was that the bugs are gone from the hydro facilities; therefore, they are more reliable, is that right?

A This is partially it. It's a simpler machine, a simpler

installation.

Q When you look at the reserves of the Montana Power Company, you tell us that they're approximately 12% of your peak resources, is that right?

A Twelve percent of load in the initial year.

Q In 1975 - 1976, is that what you mean?

A Yes, sir.

Q Of your total peak load projected, 12% is calculated as necessary for reserves, is that right?

A In addition to the total peak load there's 12% -- it's 12% of the total peak loads.

Q Again using hypothetical figures just for ease and understanding, if your total peak load were a thousand megawatts -- it's not, but if it were a thousand megawatts, your position is that for 1975 - 1976, you'd need 1,012 peak resources?

A 1120, yes, sir.

Q That means, as I understand it, that you should have 120 megawatts available to you that you will never use except, perhaps, once out of twenty years?

A No, sir, it does not mean that. We try to sell our reserves, as everybody else does on an interruptable basis.

Q Then do I understand it that the 120 megawatts which would constitute 12% of the hypothetical 1,000 megawatts, would not be used by you, but sold to somebody else?

A It could be used by us if we so desired to take care of an interruptable load, and that's the way we take care of our interruptable loads.

Q But that would mean, would it not, that you would be actually

using more than a thousand megawatts at that time?

A Our firm load, and not total load. I didn't catch that. It's 12% of our total firm load is our reserve. Now, if our total load -- our total firm load -- was a thousand, our total load might be 1100.

Q You would determine the difference between your firm load and your total load by what is interruptable?

A Yes, sir.

Q Now, let's assume that you have a hundred megawatts in interruptable load and a thousand megawatts in a firm load. On that assumption you'd need 120 megawatts in reserve for your current year, is that right?

A Yes, sir.

Q That would mean that you would have 20 megawatts that you would never expect to use and therefore could sell?

A Yes, sir.

Q Would it also mean, Mr. Hofacker, that there would be times during the year when you would, in fact, be generating or delivering 1100 megawatts some place?

A Yes, sir.

Q Because your total load is a load which at some time during the year you do deliver?

A Yes, sir.

Q I think you also told us, Mr. Hofacker, that this reserve is going up 1% per year, is that right?

A This is for the planning purposes. We're currently negotiating in the entire Northwest about reserves, and the maximum exposure, as we see it, is 20%, so we moved up as they are doing

for the area reserves 1% a year.

Q The term "negotiating" is one that you've used now again, as you did during your direct examination. Do I correctly understand that to mean that it has not yet been written in stone that the amount of your reserves will up 1% a year?

A It was agreed that for planning purposes we would do it, but it was not, as you say, written in stone. Each one of the five participants handle their reserves somewhat differently.

Q And what you're negotiating is how low the reserve requirement can be?

A With the reliability or percent of loss of load, it's decided to settle that as far as reliable delivery.

Q In other words, a year from now, as a result of your negotiations as to what your reserve allocation will be, it might not be 13%, it might be 12%, might it not?

A I would seriously doubt that it would be that low, sir, with the increase in thermal because of the experience. I would doubt it.

Q Meaning that thermal is less reliable than hydro, and therefore, folks want to take fewer chances?

A That's right, sir.

Q But you would prefer to keep your reserves down just as low as possible to make sure you conserve your total load for interruptable, wouldn't you?

A Commensurate with keeping our customers happy and not hindering their operations.

Q Well, it's certainly true in the hypotheticals we were discussing before that if you had a 1,000 megawatt firm load and

another 100 megawatts for interruptable, if you had a 12% reserve, your customers would be happy, right?

A With this mix of steam and hydro now, it could very well be, yes, sir.

Q And what the negotiations are also going to provide will tell us whether three years from now you're going to be operating at 12% reserves, 13% reserves, 14% reserves or 15% reserves, right?

A And it may also have an agreement of how much you put in for missing your load growth, I mean underestimating your load growth, which is also a reserve.

Q As a matter of fact, the reserves that are being forecasted at the planned accelerated rate are intended to compensate for the load growth, are they not?

A Yes, sir.

Q So what you have done in the load growth figures you have presented to us, both on behalf of the Montana Power Company and on behalf of the Applicants, is to project both load growth and reserve requirements, is that not true?

A The reserve requirements, as projected, included the underestimating of load. We hope that our forecasts are accurate, but you may underestimate by a six months load growth, or something like that, so that is in the reserves; however, in the Montana Power Company, we more than compensated for this 20% by taking 85% availability of our new thermal, which is higher than some of the others have deemed to take.

Q Sure, the higher the load factor that you use on thermal facilities, the more you are, in fact, including as a potentia

reserve, isn't that true?

A No, sir, no, sir. The higher the load factor we say the plant will do, the more reserve we need to maintain the same degree of reliability, because we're less sure of it being available at 85% than you are of it being available at 80% or 75%.

Q Sure, and what that means, as I understand it, taking, say a thousand megawatts in a generating station. If you lose the generating station, you're operating at an 80% load factor and you've lost 800 megawatts. If you lose the generation you're operating at an 85% load factor, you've lost 850 megawatts, right?

A I'm not sure how that relates to what I was saying before, but --

Q It's true, isn't it?

A What you stated is true, I guess.

Q Is it not correct, as it shows on Exhibit 3, Mr. Hofacker, that you project a load growth on your total system resources, both peak and energy?

A Yes, sir.

Q And is it not correct that in addition to the projected load growth under "peak," on Exhibit No. 3, you also project reserves at an increasing rate each year?

A Yes, sir.

Q And still looking at Exhibit No. 3, it is also true, is it not, Mr. Hofacker, that for every year until 1984, excluding reserves, your resources are in excess of your load on peak?

A Yes, sir, until the 1984 - 1985 period.

Q Tell us why you don't have reserves on energy.

A Because it's been netted out of the total system resources, as was indicated on our part when we got into Montana. We showed what was deducted and this has the maintenance and energy reserves netted out.

Q But the broad concept, the reason that you customarily do not show reserves on an energy load resource analysis, is the peak is there, in effect, as a reserve for energy, isn't it?

A To some degree, and you gain that by thermo by -- maybe you go 13 months without shutting down, if you can do it, but you can't do this continually. You do that too many times in a row and you're going to be down for a year instead of a month or two.

Q It would be a long maintenance?

A Yes, you bet.

Q But if we look at average energy, what you're talking about is what you expect customarily to be delivering by way of power most of the time, that's what the average energy is, isn't it?

A Yes, and resource is what we figure is available on an average annual basis.

Q And on an average annual basis, your energy load is what you customarily will be delivering throughout the year on an average?

A That's right.

Q And on those occasions, when the actual delivery of energy is in excess of your average energy, what we are talking about at that time is peak, isn't it?

A That's a peak, yes, sir.

Q Anything in excess of the delivery of energy is peak?

A Peak is energy delivered over a peak load period, that's what it amounts to.

Q So for example, on Exhibit No. 3, where you have total system load on energy at 6,455 megawatts, if there is an occasion when they are delivering6,456 megawatts in the total system, you're going to be dipping one megawatt into your peak at that point, aren't you?

A Yes, sir.

Q So in that sense, peak is a reserve to energy, isn't it?

A But it says that at another time you've got to be a megawatt under if you're going to make the year.

Q And you know, of course, that that is the case, because of the cyclical nature in which the energy is demanded?

A Yes, sir.

Q Looking at the Colstrip 3 and 4 participants as a whole on Exhibit No. 3, the year 1980 to 1981, the total system load is 14,801 megawatts, is it not?

A Yes, sir.

Q Do you know if someone has calculated from the exhibits already marked and furnished for the other four applicants, together with the Montana Power Company, what their individual items totaled to in that year?

A For system load?

Q Yes, sir.

A It's my understanding that it totals to this for the total load of each of the participants (indicating).

Q Would you have any explanation for why the totals that other people have calculated are respectively at 14,807 instead of 801 and 14,960 instead of 801? Is there a mathematical error there some place, maybe?

A I would presume so, because we just doublechecked these over the weekend again, and we only found one place that there was a discrepancy.

Q Where is that?

A That's in '85/'86.

Q What's the discrepancy?

A The 19,598 should be 19,498 under total system load. Peak.

Q Your peak for the 1975 - 1976 year should occur in December of 1975 or January of 1976, shouldn't it?

A Normally it does.

Q The surplus of 1,506 megawatts which you now project for the year 1975 - 1976 will be sold energy, won't it? Isn't that the desire?

A No, I'm not so sure that it will be. It will be sold if they guarantee a return of the energy, because if you look, you will see that we have a deficiency of energy.

Q But you might be only 87 megawatts deficient in energy with a 1,506 megawatt surplus in peak, would you not?

A Yes, sir.

Q So you'd want to be able to sell 1,506 megawatts in peak, hopefully, in part trading for 87 megawatts of energy?

A Yes, that would be fine, but you'd have to get all of the energy back plus 87 megawatts in order to make your load. Whatever you sold at the 1506 rate, you'd have to get that all

back plus 87 megawatts more for the year.

Q Wouldn't you expect that for the year 1975 - 1976, folks are going to be able to meet their loads all right with just an 87 megawatt deficiency now forecast?

A Out of that size of load, the odds are pretty good, but I don't think you should gamble on it, continually. If you have to, you have to.

Q One of the reasons the odds are pretty good is that that deficiency for this year, 1975 - 1976, is based upon a critical hydro, is it not?

A Yes, sir, and we can get worse than critical hydro in a year, and we have.

Q When was the last time you had worse than critical hydro?

A I think two years ago for a period of time we had worse than critical.

Q At that time did you not meet your energy needs?

A There was a lot of effort made to cut back loads and we burned a lot of expensive oil to meet loads.

Q Whatever efforts were made were successful, weren't they?

A Yes, but not the most economical.

Q In the utility business, it's been true for a long time, has it not, Mr. Hofacker, that when the Columbia Basin shows a little bit slack, you're going to have to work hard in order to make up for that?

A Yes, sir.

Q And that's why you have dispatchers and what they're supposed to be doing, isn't it?

A Right. It would take the cooperation of the customers to make

it, though.

Q In 1976 - 1977, would you intend to sell your surplus 64 megawatts of energy as well as your 1,082 surplus megawatts of peak?

A If we could. I don't know that we -- that there'd be much effort to be made for 1%, but if there was some, and you could sell it, it would be fine.

Q Well, the peak, of course, is considerably more than 1%, isn't it, in your surplus?

A But there, again, there could very well be a deficiency of the ability of the party buying it to provide you with the energy, and they have to give it back to you or you're not going to be able to make your load.

Q Let me see if I understand that. Are you telling me that if you sell 1,082 megawatts of peak in the year 1976 - 1977, you can't meet your energy load?

A That's right.

Q Why is that, Mr. Hofacker?

A Because if we sell at that rate for a period that goes beyond the 64 surplus, assuming these loads and numbers are correct, then you're using energy that you have to have for your loads at a later time. That is a rate up there and not an energy delivery. That's just a rate, that peak is. Now, for every hour that you generate, there's a thousand megawatt hours, and you do that long enough and pretty soon, if you try to do that for the whole year, you're going to have a deficit of 920 megawatts, an average deficit of energy.

Q Doesn't Exhibit 3 show that you have a surplus of average

energy of 64 megawatts?

A That's what I said, but that's not very much if you're trying to sell a thousand. You could use that up in 64 days or something like that.

Q Are you telling me, Mr. Hofacker, that if you sell your surplus peak, you will not have energy?

A That's right, because it's energy that you've sold over the peak hours.

Q I'm afraid I don't understand that, sir. You do tell us, don't you, that on an average over the year you're going to have more energy available than you're going to sell?

A Sixty-four megawatts, sir.

Q If all goes well in the year 1976 - '77, in accordance with your forecasts, you'll wind up the year with more energy available to you than you had to deliver?

A We could sell an average of 64 megawatts and come out even, that's all.

Q And therefore, at the end of the year, I take it to be your testimony that you would have 1,018 megawatts of peak which you could not and would not sell?

A We will sell it, but when you sell peak, you get the energy back at the off-load hours, but it still has to come out of somebody's energy resources.

Q You're simply telling me, I take it, then, when you sell the peak of 1,082 surplus megawatts that you will have in 1976-'77, you cannot do so at the sacrifice of the energy which you must deliver?

A This is right.

Q And the same would hold true, would it not, in 1977 - 1978 if you have 1,432 megawatts of surplus peak, you would like to sell that in order to cover the 46 megawatts deficiency that you now project in energy?

A Yes, sir.

Q And that would be one of the ways you could cover --

A And we are doing just that.

Q And have been for some time?

A You bet.

Q It's certainly true, is it not, Mr. Hofacker, that for the years 1975 - 1976 and '78-'79, you won't get any help from the Colstrip units 3 and 4 on meeting energy needs?

A No, we will not.

Q And it's also true for the 1979 - 1980 that you would not get sufficient energy from the Colstrip units to meet what you project as an energy deficit?

A Go back to the question just previous to that. I think I answered too quickly. Will you ask that one again, please?

Q For '78-'79 or for '79-'80?

A '78-'79 is right. Okay, we're into that. No, we wouldn't get that whole 931 and I think we've shown that.

Q For the year 1980 - 1981, it is true, is it not, that with the Colstrip units 3 and 4 which you expect to have onstream for that year, you would have a surplus in energy?

A We would, yes, sir.

Q In fact, that would be true for all the rest of the years that you project?

A I don't know that it is. Let's see. Maybe -- we've got

another chart here that shows when 3 and 4 come on. You're correct for energy beyond 1981/82, yes, sir. There's a deficiency in '81, however --'81/'82, there's a deficiency of energy.

Q I was going to ask you about that when we got to Exhibit 4. We might as well talk about that now. The reason that you have on Exhibit No. 4 a projected deficiency in energy for the years 1981/1982, is that some resources which had been available are no longer available at that time?

A Yes, sir.

Q Because you would agree with me, would you not, that if you add 1400 megawatts at Colstrip to the projected deficiency of 1281 megawatts in 1981/82 that appears on Exhibit 3, that would also give you a surplus?

A Yes, sir.

Q I think you told us on Wednesday last, Mr. Hofacker, that when you took a look at all five of the applicants in order to determine a percentage load growth over the years from 1975 through 1985, you had kind of a horseback estimate that told you what all five were going to do, and it was a little more than 6% on energy and 6% on peak in terms of growth?

A My first statement would be horseback, but I did calculate it during the noon hour and it was 5.96%.

Q So your horseback is pretty close to what you thought, right?

A Yes.

Q Have you examined, Mr. Hofacker, the analysis that the Westinghouse Environmental Systems performed in order to provide what you called the background information for environmental impact

statements with respect to projected load growth for the five participants?

A I did at one time -- not just the past few days have I.

Q Did you feel that their analysis was correct?

A I felt that it was at the time, based on the data they had at the time.

Q Certainly, the Westinghouse Environmental Analysis in November of 1973 had available to it your load growth analysis, for example, of August 1972, didn't it?

A Yes, sir.

Q As revised in February of 1973?

A Yes, sir.

Q So you would expect that similarly, the Westinghouse folks would also have had available to them similar load growth forecasts from the other companies, would you not?

A Yes, sir.

Q As a matter of fact, as a member of the Steering Committee, you saw to it, did you not, that that information was made available to Westinghouse?

A Yes, sir.

Q And you knew that they were going to have to make that kind of projection for their analysis, didn't you?

A Yes, sir.

Q Was there a load growth forecast -- load forecast, I suppose we should call it -- between the one of August 1, 1972 and the one of February 1, 1974 from the Montana Power Company?

A I don't have anything indicated on mine that I saw. I don't believe there was any other.

Q I don't either, Mr. Hofacker, so it would be fair to assume, would it not, that the February 2, 1973 revision of the August 1, 1972 load forecast of the Montana Power Company was the last one available to Westinghouse when they did their analysis?

A That would certainly be my assumption.

Q What did Westinghouse say on page 1-3 of their Westinghouse Environmental Analysis for the Montana Power Company in terms of peak and energy average for 1975/76?

A 1,044 peak, 727 average energy.

Q Well, that's not what you have on your load forecast for August of 1972, is it?

A Then the 2/2/73 must not be the latest. It says "total net resources include existing resources as of August 1973." I would have to look further to determine why that difference, but I would guess it has to do with the Anaconda loads. That's what it must be.

Q Well, let's check 1976 - 1977 and see how close they are on that one. What does it say in the Westinghouse analysis?

A Eleven peak and 768 energy and the same thing is true there, that --

Q It's different, isn't it?

A 1,020, yes, on the peak for 76/77 and 693 for energy, and then, again, I'd think it must have to do with some Anaconda Company load revisions.

Q Those are Anaconda Company load revisions that didn't get on the load forecast that you made between February of 1973 and February of 1974?

A Apparently so, it must be.

Q Let's look at the top of page 1-3 of the Westinghouse Environmental Analysis. What do they project as the system loads for the five participants?

A 7.55.

Q That's about 25% higher than the actual projection that you told us about in connection with Exhibit 4, isn't it?

A The one I told you about was the revised load with the latest load forecast, yes, sir.

Q We certainly shouldn't rely on the Westinghouse Environmental Analysis to believe that the future would project 7.55 --

A From 1961 to 1971 it indicated that.

Q We shouldn't rely upon that to suggest that from 1975 to 1985 it's going to be 7.55%, should we?

A No, and I don't presume that they asked you to, in here.

Q Do you know of any place else in the Westinghouse Environmental Analysis where they make load projections?

A I don't know of other places, but I would need to read some of the statements in there, because this is showing historically what it's done, but they went from forecasts as we had them at that time -- as our forecasts, looking ahead, I believe -- that was my understanding of what they did.

Q Of course, they therefore would not have had the benefit of the revisions downward that have occurred since November of 1973?

A I don't think so, because they submitted their report by November of 1973.

Q Exhibit No. 4, Mr. Hofacker, that's the loads and resources

that were projected for the Colstrip 3 and 4 participants, including the Colstrip units 3 and 4?

A Yes, sir.

Q That tells us, does it not, that in the first year in which Colstrip 3 and 4 is on line, you still have an energy deficiency?

A Yes, sir.

Q And in 1981/82, you still have an energy deficiency when both of the units are on line?

A Yes, sir.

Q It also tells us, does it not, that for the last three years of your decade of projection, you also have a peak deficiency, notwithstanding the presence of Colstrip units 3 and 4?

A Yes, sir.

Q What are you going to do about that?

A It's what the systems are looking at at this time, as to what to do about it. Mr. O'Connor said the other day that we're planning for the facilities, looking at what we ought to do to cover those deficiencies, because we have a deficiency in 1983/84 as well as the others.

Q So far as 1979 and 1980 is concerned, that's something you ought to be planning about right now, isn't it?

A The other four. The Montana Power Company, I don't believe is in a problem area. Let me look at the sheet here first. No, we have no deficiencies in that area as far as the Montana Power Company.

Q On energy?

A Or peak.

Q The Montana Power Company projects, does it not, a peak deficiency in 1979 - 1980?

A Not with 3 and 4.

Q Excluding Colstrip units 3 and 4?

A Yes, sir.

Q As the other four participants do their planning for how they are going to meet their loads in 1979 - 1980, don't they share with you what their plans are?

A We exchange plans, yes, sir.

Q In order for us to do some good regional planning here, we'd have to know how we're going to meet the five participants' loads in 1979 and 1980?

A And you'll be hearing from them as they appear on the stand. I'm in no position to speak for them, sir.

Q But you're confident, are you not, Mr. Hofacker, that the other participants have a way to make up the deficiency for the 503 megawatts of energy in 1979 - 1980?

A No, I'm not.

Q You're not confident of that at all?

A No, I'm not.

Q What's the alternative to not making up the deficiency?

A Load reduction or praying for awful good water.

Q Praying for good water?

A Or getting good water. Praying for it won't carry any load.

HEARINGS EXAMINER: No objection to praying in this hearing.

Q And in 1981 - 1982, with the Colstrip units still on the line, both of them, there's going to be an energy deficiency that

the other participants are going to have to worry about, right?

A Yes, sir.

Q You're going to share their worries with them in joint planning, aren't you?

A Well, we can share some of our surplus. We have surplus energy there, and we may very well be sharing that with them, helping to that extent.

Q In 1981 - 1982, what's the amount of your surplus over firm load?

A If you're talking average energy, it's 296. Excuse me, 261 for 1981/82.

Q Well, that looks like a pretty easy solution, then. You just give them your 261 average energy and that will wipe out their 201 deficit, won't it?

A No, sir, because that 201 has this included in it.

Q So even giving them your surplus, they still have a deficiency somehow?

A They surely do.

Q And they're going to have to make it up somehow without relationship to Colstrip 3 and 4?

A And perhaps can make it up with extra running of gas turbines. They may wish to buy our Bird energy with high-priced oil if the situation is bad enough.

Q Have you had some discussions with them about that?

A We have discussions with them rather continually as to how we go about these things.

Q Have you discussed with them specifically your selling them

some average energy from your Bird plant?

A No, sir, but we have sold it in the past, so I presume they would think of it for the future.

Q In connection with Exhibit No. 5, which is the Montana Power Company's loads and resources, excluding units No. 3 and 4, one of the items listed is Washington Water Power Company, for which you have a contract to purchase 30 megawatts of peak in 1975 - 1976?

A Yes, sir.

Q Thereafter you have no contract with the Washington Water Power Company at all?

A We do not.

Q And the reason for that, I believe you testified, on your direct examination, was that you didn't need it, right?

A No, sir. Yes, sir, I mean. We did not need it.

Q Then with respect to the Puget Sound Power and Light Company, again you had a contract with them for purchasing 19 megawatts in 1975 - 1976, and that contract is also not to be continued because you didn't need that, is that right?

A Not until '79 and '80, without Colstrip.

Q So you discontinued your negotiations with the Puget Sound Power and Light Company?

A Yes, sir, but that doesn't say that there won't be further negotiations if the need arises.

Q Because they have it available in that time, don't they?

A They have surplus peak, yes, sir.

Q Then there was something you described as the Hanford Debt Service. I didn't quite understand what the Debt Service was.

Whose debt is being paid off?

A The Washington Public Power Supply System debt for the construction of the Hanford plant.

Q Who is paying it off?

A The participants in the plant, the purchasers.

Q Of the power?

A To the agreement. We had 10% by contract.

Q What you're doing is buying some power from Hanford as a result of an agreement, is that not true?

A We get this power whether Hanford runs or not.

Q If you don't get it from Hanford, you get it from Bonneville System?

A Well, we get it from Bonneville System in all cases.

Q In fact, Bonneville has undertaken to deliver the Hanford power if Hanford runs. If Hanford doesn't run, Bonneville will see that you get the power from some other source?

A This is right.

Q That's your agreement?

A Yes, sir.

Q Now, Bechtel had proposed that you do something with respect to purchasing Hanford power, didn't it?

A Yes, sir.

Q What was their proposal?

A To buy it at a hundred percent load factor until '69 or '70 and then, assuming things worked out, they would convert it to peak.

Q Is that what you've done?

A We did by exchanging that with Puget and Washington Water Power

for peak.

Q And actually, you get that power from Bonneville at Bonneville's rates, do you not?

A We do.

Q Are those more expensive or less expensive than rates you would have to pay elsewhere?

A They have, historically, been less expensive.

Q With respect to the Hanford extension of power, which provided for 84 megawatts of peak in 1975 - 1976 and 1976 - 1977, no further negotiations have been consummated, is that correct?

A That's right.

Q Are you still in negotiations for those megawatts?

A I don't rightly know, sir.

Q Why not?

A Because I haven't been involved with that activity for the last two or three years, and I'm not that up to date as to whether the negotiations would be an extension of that or not. I believe there are negotiations going on for 1977 - 1978 and 1978 - 1979, but I think there's controversy as to the price that the AEC wants to charge for it.

Q Well, as the chief planner for the Montana Power Company, isn't it kind of important for you to know whether you're going to have those extra megawatts available to you from the Hanford extension after 1977?

A For those two years, we don't need them, as you can see here.

Q So you don't care too much for those negotiations?

A Particularly when they're going to be as expensive as they are.

Q And there's something about a BPA offset that's on Exhibit No.

4?

A Yes, sir.

Q That has something to do with the payment for downstream benefits at BPA rates because the Montana Power Company stores energy upstream, is that right?

A Yes, we hold the water so that it isn't spilled, is what it amounts to, and you can use it at a later date to a better advantage.

Q And in return for your providing this regulating function for the Bonneville system upstream from the Columbia, they pay you in offsets of energy, customarily, don't they?

A Yes, sir.

Q That's been going for a long time, hasn't it?

A Yes, sir, by the Pacific Northwest Coordination Agreement.

Q You would expect that to continue to go along for some time, wouldn't you?

A Yes, sir, and this was one shock here, though, of settling past headwater benefits. That's the reason for the one year that takes place, and that was balancing the books.

Mr. Hofacker, I'm going to ask you to assume, sir, that your 1975 and 1974 long-range plans both said the same thing with respect to your projected peak resources for the years 1975 through 1985. You'd go along with that, wouldn't you?

A Yes, sir.

Q Let's assume that what that says is that in 1975 you would have 1,037 megawatts of peak resources.

A In 1975?

Q Yes, sir.

A Peak resources?

Q Yes, sir.

A Where are you reading from?

Q Excuse me, I didn't mean resources, I misspoke myself. I meant load.

A '77-'78, 1,037 peak.

Q Well, Exhibit No. 5 shows that in 1977 - 1978, your firm peak load would be 1,037 megawatts?

A That's what I just said, sir.

Q But your long-range plan for 1975, I believe has been received in evidence?

A Yes, sir, but as I have earlier testified, we reduced for the next three years because of economic conditions and what might be conservation, and so forth.

Q In fact, as you went through your long-range plans, 1973 was a peak of 993 megawatts, 1974 was a peak of 1,037 megawatts, which was the same in 1975, but on Exhibit No. 5, our most current information before us today, it says 967?

A Yes, sir.

Q What would you expect someone reading your long-range plans to conclude with respect to that fluctuation in your peak resources for the first year, 1975 - 1976, in which the projection is made?

A I would hope that they would think we were keeping right up to the minute, when we looked at the past year's activities, the downward turn of economics, what had happened in the lumber industry in Montana, and the weather that had happened, and assume that we're trying to be current.

Q And if, Mr. Hofacker, from 1973, the first long-range plan you submitted until the time that this proceeding began and Exhibits 5 and 6 were introduced, there was a projection of a lesser load from 1975 through 1979, wouldn't you expect those who are reading your projections and your long-range plans, to conclude that your loads have diminished in forecast?

A Yes, and rightfully so, if they're at all current with the national economic situation.

Q If it is true that you would expect people to understand that your loads have diminished as you forecast them, why do you want the same people to believe that there will be a change in that pattern after 1979 so that your loads will go up even further than they had before?

A Well, there are indications even now that perhaps we bottomed out and things are going to come back, the manufacturing of cars, that will reflect in the increased use of copper, jobs. Your economists are forecasting that we'll be coming out of this depression. Why should it stay at a low ebb?

Q As I understand it, your view is, sir, that by 1980, the economic conditions as they now reflect themselves, will result in sufficiently good times for energy to liberate, that you're going to be back up to a very high increase in your annual growth, is that right?

A We'll be back up to what we have experienced in the past. Whether that's considered high or not, I don't know, but we have, as I have mentioned also, the inquiries for power that would indicate the potential is certainly there.

Q Well, let's talk about those inquiries for power. You

mentioned some of those to Mr. Bellingham the other day, did you not? Why don't you get your notes out on those specific inquiries, sir?

A Yes, sir.

Q Let's take the Ethyl Corporation first.

A Yes, sir.

Q Your calculation of the additional megawattage necessary for the Ethyl Corporation was based upon a letter of February 7, 1975, from the Senior Vice-President of the Ethyl Corporation in Baton Rouge, Louisiana, to George O'Connor, isn't it?

A Yes, sir.

Q And in that letter, Mr. Gautreaux refers to a letter of January 14th from Mr. O'Connor to Rudy Beckman. Who is Rudy Beckman?

A I presume it's someone in the Ethyl Corporation. I don't know.

Q In any event, Mr. Gautreaux says in his letter of February 7, 1975, "Thank you for your letter of January 14th to Rudy Beckman, in which you suggest a means by which we can support your efforts to expand power generation in Montana." That's what Mr. Gautreaux said to Mr. O'Connor, wasn't it?

A Right.

Q Is that what you are relying upon to tell us of the interest of the Ethyl Corporation had to proceed with some additional development?

A Not that statement by itself. Mr. Talbot checked with them to see what kinds of loads they were talking about, and that's where we got the magnitude of the load that they were interested in.

Q

Q The way that happened was that Mr. Gautreaux said that we certainly want to support your company in that important endeavor to expand power generation in Montana and therefore, Ethyl decided it would respond by sending a letter to Governor Judge, isn't that right?

A Yes, sir.

Q And Mr. Gautreau said, "I certainly hope, Mr. O'Connor, that our small contribution will be of some value," right?

A Yes, sir.

Q Ethyl considered a more direct approach of meeting with Governor Judge, but they were hampered from doing that because they didn't want to disclose very much about their project, is that right?

A That's what he says in his letter, yes, sir.

Q And what Mr. Gautreaux wrote to Governor Judge was a letter in support of Colstrip 3 and 4, wasn't it?

A Yes, he did.

Q Saying that the Ethyl Corporation didn't have any operations in Montana, but that they had some good reasons for being interested in the climate for industry in Montana?

A Yes, sir.

Q They were conducting a survey determining what would be the best location for a major new plant they had begun considering constructing?

A This is the way any new load starts.

Q They noted that you folks at Montana Power had given them the maximum amount of cooperation, but they weren't sure about being able to get the necessary commitment on future power

supplies?

A They said that we weren't.

Q They'd have to get it from you, wouldn't they?

A That's right. The "they" they are referring to is "us" in that one.

Q What they were talking about was a plant that would start employing about a hundred people?

A Yes, sir.

Q And because the nature of their plant was so competitive, they didn't want to say anything more about their plans?

A I can understand that.

Q And they also told Governor Judge, didn't they, that they could not guarantee that any timely expansion of the power generation at Colstrip would bring Ethyl Corporation to Montana, would it?

A That's right, they said they were making a study.

Q They would simply consider Montana, along with some other places, and one of the things they would consider would be the availability of power?

A And if there were not available power, we would be scratched off the list before they completed their study. That's normal

Q And that's the kind of letter you were talking about that was the expression of interest from the Ethyl Corporation?

A And indeed it is.

Q Of course, Mr. Gautreaux concludes in his letter to Governor Judge by noting the necessity for achieving an important balance between environmental and social impact on the one hand and industrial development on the other hand?

A Right.

Q And he expresses his confidence that a balanced consideration of environmental, social and economic factors would be the path to a bright future?

A It should be.

Q And all of that from the Ethyl Corporation came from the solicitation of their views by Mr. O'Connor's letter of January 14th to Rudy Beckman?

A It may well have been. I don't know whether something preceded that or not. I have no records.

Q Then let's take the Continental Oil Company --

HEARINGS EXAMINER: Mr. Shenker, could we take a ten minute recess?

MR. SHENKER: By all means.

BRIEF RECESS AT 3:00 P.M.

HEARINGS OFFICER: All right, very well, we'll proceed.

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Cross, by Department of Natural Resources

By Mr. Shenker (Cont.):

Q Mr. Hofacker, we had just discussed the Ethyl Company's planned expansion, which came as a result of a letter of January 14th requesting some support for the efforts to expand power generation. Now I want to move to Continental Oil Corporation. The additional megawattage of the Continental Oil Company was 6.7 megawatts, right?

A Yes, sir.

Q And that came as a result of a letter of November 21, 1974, to Mr. O. P. Rice of the Montana Power Company, Manager of Engineering. Is that somebody on your staff?

A He is. He's Assistant Manager of the Engineering Department.

Q There was a letter written to him by the Plant Manager, Mr. Blomeyer, of Continental Oil Company?

A Yes, sir.

Q Through the good offices of the Assistant Mechanical Superintendent of the Billings Refinery, Mr. Allgren?

A Yes, sir.

Q And his letter of November 21, 1974, said, "Confirming our telephone conversation of this date, you urgently requested documentation of need for additional power requirements," right?

A Yes, sir.

Q And Mr. Allgren then went on to say to Mr. Rice, "I agree to

furnish you with a justification for the need for expanding our Billings refinery's electric facilities," and there followed the justification for the consideration of the Montana Power Company in preparation of the application to the Department of Natural Resources for a certificate of environmental compatibility of public need?

A Yes, sir.

Q What day did the Department of Natural Resources's Draft Environmental Impact Statement come out?

A January -- no, the final came out January 28th, 29th. The draft was out, wasn't it December?

Q November 21, 1974.

A Yes.

Q And that was the day that Mr. Rice and Mr. Allgren had their conversation, in which Mr. Rice urgently requested the documentation of need?

A Right.

Q That was the Continental Oil Company?

A Well, may I add a statement or two that prefaced this letter, because we had been informed by the Continental Oil Company that they were going to need six or seven megawatts, and in view of the oil situation out of Canada, we didn't know whether they would go through with their expansion, so Pat went down on that mission to see if, in fact, we should have them in our plans, and then, coming back, he had asked them for a letter, so his trip to them had preceded the Draft Environmental Impact Statement.

Q Yes, but his conversation with Mr. Rice, in which he made the

urgent request was on the day that the Draft Environmental Impact Statement was issued?

A Yes, sir, but he had been asked to do this before. We do this every year, particularly in the fall of the year, with our budgeting, and those customers that have told us of their prospective needs, we again check to see if this, in fact, is true, dependent upon the conditions that exist at that time, and the oil situation is what prompted this one.

Q Do you urgently request everybody to get their information in to you annually?

A Well, this one was pretty necessary that we have documentation, because we knew, that I would be examining, just as you are examining me now and that we should have something other than just verbal.

Q And then, of course, the reason for the urgen request was so you could be prepared to meet cross-examination in this proceeding?

A That, plus our budgeting procedure.

Q Then, with respect to the Hoerner - Waldorf Company, the basis for your information as to their needs is a memorandum of October 12, 1973, from Mr. Talbott, in your Marketing Department?

A Right.

Q And that's the memorandum in which he noted that Hoerner - Waldorf was going to have 12.75 megawatts of self-generation?

A I believe it does. I was trying to find it on here.

Q The next to the last paragraph.

A Okay, yes, sir.

Q How are they going to do that self-generation?

A Well, they need steam for their process, and there's a waste. They can't use all the steam. A lot of these organizations use waste steam for generation.

Q Pretty good way to conserve in the production of energy, isn't it?

A Yes, it would seem so, if the economics pan out.

Q In February of 1975, Mr. Talbott spoke with the Stauffer Chemical Company's Mr. D. M. Greeno, who is the Director of their energy management?

A Yes, sir.

Q And that was in order to find out what Stauffer was going to do, right?

A I had been notified by Mr. Goldhammer of BPA that Stauffer had requested additional power from them and BPA had informed them they would not have it available and they might well contact the Montana Power Company about it.

Q Mr. Goldhammer retired from the Bonneville Power Administratio on January 1, 1975, did he not?

A Right, and of this he had informed me before then.

Q Well before then, hadn't he?

A I don't know whether well or not, but before his retirement. It was while he was still part of BPA.

Q Is it your testimony that the Morrison-Knudson Company, through its Westmoreland Mine, was also going to need some more energy from you?

A This is a memo you're referring to that came from Stan Hedrick, our Division Superintendent, to John Coleman, Vice President.

Q And that was one day before the first prehearing conference on the Colstrip proceeding on February 12, 1975, right?

A Yes, sir.

Q What is your testimony? Is Morrison-Knudson going to be one of the folks that is going to need some more power from you?

A That's what they've intimated.

Q They've intimated that?

A Right, and none of this contact of Morrison-Knudson was prompted by anybody in my department, to my knowledge.

Q Do you know, Mr. Hofacker, whether since February 12, 1975, the Morrison-Knudson folk in connection with their Westmoreland Mine have made a definite decision?

A No, I don't.

Q And you know, of course, that the memorandum from Mr. Hedrick, your Division Superintendent, said that the Morrison-Knudson representative, Art Bloom, was going to have to let Mr. Hedrick know when they would make a definite decision?

A That's his last paragraph here, yes, sir.

Q And of course Mr. Hedrick was of the opinion that the present system of the Montana Power Company would be adequate to handle any definite increases planned, isn't that right?

A He's talking about the facilities in his division are capable of handling this, yes, sir.

Q And the basis for your overall description of potential electric loads, for which you have received inquiries, was a memorandum written to you by Rob Stuart dated April 18, 1975, in connection with this proceeding, was it not?

A This was a summary that I asked him to prepare.

Q Of course, those loads, as forecasted, Mr. Hofacker, including the Continental Oil Company and even the Western Energy Company itself, at Colstrip, Big Sky at Bozeman, and the Morrison-Knudson Westmoreland Mine and the Malmstrom Air Force Base at Great Falls, and the Hoerner-Waldorf Corporation, and Stauffer Chemical Company, and the Ethyl Corporation, those aren't even sufficiently definite for you to include in your load forecasts, are they?

A And we never do include them until we have a contract, but we always have a list of potentials so we know what we're doing.

Q Yet, in a sense you have included those very forecasts from those companies in your February 25, 1975 load forecast, haven't you?

A Only to the extent that we feel that they may more than offset whatever conservation may take place.

Q Aren't those potential inquiries part of what you include as your inherent load growth?

A We have not included these in our potential load growth whatsoever.

Q Mr. Stuart says you have, didn't he, in his memorandum of April 18, 1975?

A Where does he say that, sir?

Q In the big paragraph.

A The existing loads are included, but not these. These are increases, which in most cases are more than just the normal load growth would take care of.

Q Let's make sure we understand. Mr. Stuart is the very same man

whose initials are RCS, who prepared your February 25, 1975 load forecast?

A Yes, sir.

Q And also the November 1, 1974 and February 1, 1974 load forecasts?

A Yes, sir.

Q That same Mr. Stuart who said to you in your memorandum of April 18, 1975, quote, It probably could be assumed that some of the loads or portions of them are included in the February 25, 1975 load forecast due to inherent load growth, unquote. Did he not say that?

A On April 18th you say?

Q Yes, sir.

A I'm looking for the April 18th. This would be very true. As I was stating, the initial load is part of our growing load, but that growing load would not take care of all of these additional increases if they come to pass.

Q But you are including at least some portion of loads such as those from the Ethyl Corporation as your projection of load growth, aren't you?

A Some 5.5%, yes, sir.

Q How much?

A 5.5%.

Q When you say that the increase that you project over a period of time is 5.5% in additional growth, you mean that part of that increase would come from folks like the Ethyl Corporation?

A Not the Ethyl Corporation, no, sir. I'm talking about existing

loads on our system, 5.5% of the existing load of Continental, the existing load of Western Energy, the existing load of Big Sky, the existing load of Morrison-Knudson, and so on down the list, 5.5% of those initial, but that would not make up for the difference in the next several years, as indicated. There would be a considerable amount over that if these, in fact, all come on.

Q Didn't Mr. Stuart say to you in his memorandum of April 18, 1975, "Attached is a copy of potential electrical loads, although not complete"?

A Yes, sir.

Q And attached was the listing of the Continental Oil Company, the Western Energy Company at Colstrip, Big Sky at Bozeman, Morrison-Knudson, at Westmoreland Mine, Malmstrom Air Force Base at Great Falls, Hoerner-Waldorf Corporation, Stauffer Chemical Company, and Ethyl Corporation?

A Yes, sir.

Q And didn't Mr. Stuart also say to you in that same memorandum, "It probably could be assumed that some of the loads," referring to those attached, "or portions of them, are included in the February 25, 1975 load forecast due to inherent load growth"? Did he say that?

A He did say that, and this is what I was trying to explain how that is included, sir. If you take the 275 megawatts that those add up to, the total potential by 1982, and take a 5.5% growth of the existing loads, which is 57 megawatts, you will get a potential load growth of 78½, which is almost 200 less than if all of this came on. That's what he is meaning, 5.5%

of those existing loads are in our basic load growth.

Q And your handwritten notes on Mr. Stuart's memorandum show a potential over normal growth?

A That's what I was just saying.

Q But some portion of those loads which Mr. Stuart referred to, as I just described them, are included in your load growth?

A They're in the mix of our base load, whether it's these or some others, but our base load has been growing in that amount and these are in there, those initial loads.

Q When you talk about potential new loads, you include among other things, irrigation pumping as an estimate, don't you?

A Yes, sir.

Q At that one time you thought that might be an additional 166 megawatts?

A In peak, in the summer.

Q But then you had some revised thoughts that it would probably be only 68 instead of 166?

A Yes, sir, and that was based on some later information.

Q Similarly, you revised downward your 1981 forecast to 80 megawatts?

A That could very well have been.

Q And that's in your handwriting, Mr. Hofacker, with the dates of March 12, 1975 and February 7, 1975?

A I have that slip here somewhere. What were those two dates again?

Q It's a document in your handwriting entitled "Potential New Load."

A No, it's March 7th. That's what threw me. There was a copy

to Don Gregg on March 12th.

Q And on that particular piece of paper, you forecasted no additional irrigation for pumping in 1977 - 1978 - 1979, but in 1980 you forecasted for that summer you might have 68 additional megawatts?

A Yes, sir.

Q Now, with respect to the Anaconda Company, the present load is what, 127 megawatts?

A That's what it was, I believe, recently.

Q And in 1981 you think it might change plus or minus 35 megawatts?

A Net, yes, if we lose the 20 megawatts of mining load that we are estimating.

Q Plus or minus 35 megawatts means that in 1981, you may have 35 megawatts less than 127 megawatts from Anaconda, right?

A No, that plus or minus is somewhere plus or minus 35. It might be 33, it might be 37. That's what the plus or minus means.

Q I see. So you think that by 1981 you will have as much as 160 megawatts, perhaps, from Anaconda?

A At least.

Q What percentage growth would that be from 1975 to 1981?

A 120 -- about 17%.

Q In six years?

A Over the six-year period, yes, sir.

Q How much would that be in terms of annual increase?

A Without calculating, I suppose 1½% compounded, something like that, 1%, somewhere in that area, 1 to 1½ compounded might be

it.

Q That is, of course, unless the copper market --

A Wait a minute, wait a minute, I take that back. I was using the wrong number. It was about 17% and that, in six years, would probably be closer to two plus percent, compounded.

Q Somewhere around 2%, perhaps?

A Yes, sir.

Q But that, of course, assumes that the copper market does not stay low?

A It doesn't assume that it comes back to where it was, because they projected a lot more growth than that if it gets back to where they thought it would be.

Q But in your view, if the copper market stays low, that's your language, then you won't get that much growth with Anaconda, will you?

A If the copper market stays low, this could very well be the amount that goes on. If the copper market gets higher, it may be that plus sizeable amounts more, as they have indicated.

Q Your words on this particular piece of paper, Mr. Hofacker, are that you can expect a 35 plus or minus increase from the Anaconda Company load by the late '70's or early '80's, at the latest unless the copper market stays low indefinitely, aren't those your words?

A Yes, sir.

Q Now, Mr. Hofacker, you were talking a little bit ago about how there was a discrepancy between the figures used in your long-range plan, 1974 and 1975, on load, and what appears in Exhibit No. 5, which is the most current version of your load forecast

revised downward. Can you give us some reasons, sir, why there should also be any discrepancy between resources in 1974 and 1975 long-range plans -- excuse me -- 1974's long-range plan, and your current Exhibit No. 5?

A You're talking about the amount of the discrepancy. The discrepancy I talked about before had to do with the five companies'total.

Q Now we're talking about the Montana Power Company.

A Right, we are.

Q Can you think of any reasons, sir,why in April of 1974 you should have had any different thought about what your resources would be for 1975, from what your current best estimate is?

A Yes, maybe some contracts were consummated that had not been, or -- there are negotiations almost all the time. It may have been resources had changed on that basis.

Q So, Mr. Hofacker, so I understand you, through the course of the year, you would expect that your projection of what your loads would be the following year might well change?

A Did you say loads, sir?

Q Yes.

A I thought you said resources. I misunderstood you.

Q I'll finish my question. I believe it's a correct statement of the record from your testimony previously that during the course of the year your projections on what your loads might be could change and during the course of that same year, your projection on what your resources would be for the next year could also change?

A That might well be.

Q How much change would you expect over a projection of two years?

A I don't know that I'd have any field to say what change there would be. I don't think the base load would be changed unless something drastic happened to indicate a trend.

Q Let's talk about resources, then. On what basis would you think there might be change in your projection of resources over a period of a couple years, as between a 1974 projection and a 1975 projection?

A Something that might have happened is that we received a 5-year notification of BPA canceling their contract. This could have come without our knowing it. That's an example of what could happen. I think another one, just last fall, we consummated the offset for peak trade, I believe, with BPA, as far as the resource.

Q Mr. Hofacker, your Exhibit No. 5 lists as your peak resources for 1975 how many megawatts?

A 1163.

Q So if you projected 1122 megawatts in 1974's long-range plan, that could be explained by your having some additional contracts change? Is that why?

A That's what it would have to be to make a change. I mean purchase contracts, not sales -- purchase contracts.

Q Then it would be your testimony that in April of 1974 you didn't know what your purchase contracts were going to be for the year 1975 - 1976 as accurately as you knew in February of 1975?

A This could be.

Q So that it is, of course, the case that from year to year and during the course of the year, you will change your projections, not only of loads, but of resources, as well?

A Rather nominal amounts unless a significant amount changes.

Q Give or take about 10%?

A I doubt that you'll find there has been that much change year by year by year, maybe in one instance, occasionally.

Q In some cases it might be 25% off?

A It depends on how far back you go.

Q Well, if you go from 1974 to 1979, over a five-year projection, would you expect that you would be 25% off on your resource projection?

A I'm trying to think what could be 25% in resource projection. Other than contracts, I can't visualize what it would be.

Q What's your projection now from Exhibit No. 5 on 1979 - 1980 peak resources?

A 1301.

Q And if some ten months earlier your projection was 1,614 peak resources?

A That's because we thought that Colstrip 1 and 2 were going to be on.

Q Well, of course, they would be by 1979 and 1980, wouldn't they be?

A They will not. The first one will be on in '79 and the second one in '80 by the schedule now.

Q That's Colstrip 3 and 4.

A Excuse me, 3 and 4 -- I'm sorry.

Q So you think the projection you made in 1974 was one that

included Colstrip units 3 and 4?

A Probably so. The date of that projection I think you're talking about is 1972 -- I don't know. What did you say that date was?

Q I said 1974.

A L974 -- yes, sir, it probably did include Colstrip 3 and 4 by '79-'80.

Q If you include Colstrip 3 and 4 in your total resources for 1979 and 1980, you look at Exhibit No. 7 for this proceeding, don't you?

A I would think so.

Q What is it that year?

A 1511.

Q Why is it 1614 in your 1974 load forecast?

A Because we again assumed that Colstrip 4 was going to be on in '79 and '80 and on this No. 7 it doesn't come on until 1980 - 1981, and that's 210 megawatts.

Q Then we'd have to look at 1980 - 1981 for the first year in which there ought to be the same project, is that right?

A Yes.

Q 1980 and 1981 on your Exhibit No. 7, how many resources do you have in peak?

A 1758.

Q Why would you have 1648 in your projection in 1974?

A Because, as I said, we negotiated the peak for energy trade with BPA last fall. That's a hundred megawatts.

Q Another 110 megawatts?

A Well, a hundred, and maybe something else changed, but it was

a hundred that we picked up for that that I can see.

Q So as you continue to do your negotiating in picking up more megawatts here or dropping off some there, it's not surprising to you that you would have revisions in your loads and resources year by year?

A We did this change for a specific purpose because of the slippage of Colstrip 4, and this was a means of making up some of that.

Q But you just told us about another hundred megawatts that you picked up from Bonneville negotiations last fall?

A Yes, sir.

Q That's not unusual for you to be doing that sort of negotiating, is it?

A If you need it and it can be accomplished, yes, sir.

Q And that's a needed negotiation that you performed for the years 1978 - 1979 and thereafter?

A Yes, sir. You will note that our Bonneville trade starts in 1978 - 1979.

Q And that, of course, is not something that you had projected in your resource projection in 1974, nor is it something that you had projected in your resource projection in 1973?

A I believe that's true if those differences you're talking about are, in fact, the case.

Q 1973, of course, being the year in which you made application for the Colstrip units 3 and 4?

A Yes, sir.

Q In Exhibit 6, Mr. Hofacker, you list as one of your average energy resources the Bird plant without any megawatts. Why is

that?

A Because the availability of oil might preclude our using it on a firm basis, and the cost.

Q Yet you do list in Exhibit 7 the Bird plant for 70 megawatts of peak in every year from 1975 to 1985?

A Yes, sir, it's a peak reserve that's available if we need it, but it's just like gas turbines, we prefer to run it for a few hours every peak.

Q You plan to use that peak?

A If we need to, we certainly will.

Q Do you expect that you're going to or not?

A If we have a breakdown, we may very well have to, and the odds are in favor of having a breakdown. History says that.

Q You regard the Bird plant as part of your dependable reserves or not?

A Dependable reserves, yes, sir.

Q Therefore, the likelihood is that you will, in fact, be using the Bird plant over the years from now until 1985?

A There have been periods when we haven't run Bird for two and a half years, but it's there to be run if necessary.

Q Do you not believe that you will be running it?

A I hope that we don't have to.

Q What is your belief?

A I'm sure that we will, from time to time.

Q And that will require your having gas and oil in order to do it, right?

A Yes, sir.

Q Are you going to participate in a veil of tears if you have to

use it?

A I'm sure we will, unless somebody else buys it.

Q Buys the Bird plant?

A Buys the output.

Q Would the Bird plant be part of the dumped power Mr. O'Connor was talking about if you don't use it?

A I don't know whether you'd call it dump or not, the price is far too high. They'd have to need it pretty badly.

Q Let's talk some more about Exhibit No. 6. There's a line on there that I didn't quite understand in your direct examination. It's called "Median Water Adder." What does that mean?

A That's if we get median water, there's that much more energy available and median water is that where you've had as many years worse than that as you have had better than that.

Q Median means about halfway in between, right?

A Roughly that, yes, sir.

Q So your projection shows that in the year 1975 - 1976, for example, if the median is any guide, you're going to have a surplus in energy instead of a deficit in energy by looking at the median water?

A It could very well be, sir.

Q And if you look at 1979 and 1980, instead of having a projected deficit of 67 megawatts in energy, you'd have a projected deficit of 16 megawatts?

A Yes, sir.

Q After that item on Exhibit No. 6 is the Bird plant with maintenance deducted only if oil is available. What does that mean? 64 megawatts of energy would be available from the Bird plant?

A Yes, sir.

Q How come you don't have it up above on the firm energy load and you do have it down below after median water adder?

A Because, as I said, this is a reserve, a forced outage reserve resource that we hope we never have to run, but that is what we could get from it if we had to run it.

Q For energy?

A For energy, yes, sir.

Q So if we add the 64 megawatts of Bird with the median water adder year by year, we would certainly wipe out your deficit projected through the years 1979 through 1980, 1980 - 1981, 1981 to 1982, wouldn't we?

A Yes, we would, if you can get the oil and you fly in the face of the Federal Government recommending minimizing the use of oil -- convert to coal where you can.

Q 64 megawatts out of a total system of 895 megawatts in 1980 and 891 megawatts in 1981, is not a predominantly oil-fired system, is it?

A No, but you can trip yourself up by percentage, sir, and that's what you're doing. You take a hundred companies running 60 megawatts, and that's a lot of oil, and it may very well, if you -- on the premise that you're making is what you're saying, everybody should run on whatever oil facilities they have.

Q Are you familiar, Mr. Hofacker, as long as you bring up the national government's projections, their recommendation now from the Federal Energy Office on near-term, mid-term, and far-term energy plans?

A Somewhat, yes, sir.

Q What do they provide for near-term as far as oil-fired facilities are concerned?

A Now, what do you mean?

Q What is the near-term provision in the Federal Energy Office for oil-fired facilities?

A The use is going to go up, the use of oil, because there aren't enough facilities you can convert to coal. That's my understanding of it.

Q And near-term lasts until when?

A I don't know what their near-term is -- maybe it's five years.

Q So from now until 1980, then, the federal governmental policy you're talking about says that between folks that use oil-fired and other kinds of facilities, the expectation is there will be more oil used for generation?

A Not because they want to be, but that is true, but not because they want it that way.

Q After 1980, they expect there will be some conversion of facilities, don't they?

A They're hoping so.

Q That would be a retro-fitting of those systems which are largely oil-fired now so that they would be more substantially fired by other fuels such as nuclear or coal, isn't that right?

A Yes, sir, and they're talking about their base load units.

Q And as between nuclear and coal, of course, the Energy Office projects that by far the predominant energy usage of the mid-term should be nuclear, is that right?

A It should be, but it's still going to be a small percentage of the total.

Q Indeed, because the largest percentage of the total would be in what kind of facility?

A I believe it will be fossil-fired.

Q If you include in fossil fire, oil, gas and other fuels in addition to coal?

A Yes, sir.

Q If you just look at coal alone on the fossil-fired, by 1985 what does the Federal Energy Office project as between nuclear and coal?

A I don't remember the numbers, but it's a lot more coal than nuclear, if I'm not mistaken.

Q You think that's right?

A I think so.

Q How does hydro fit into the picture?

A For energy, it's not much increase. There's a lot of peaking that they're talking about.

Q Returning to Exhibit No. 6, Mr. Hofacker, it certainly is true that if you run your Bird plant for 64 out of your 890 megawatts in 1981, and you have your median water adder, without Colstrip units 3 and 4, you would have a surplus energy, wouldn't you?

A Yes, sir.

Q And if you do the same in 1982 and 1983, assuming that the median water adder remains the same, you would have a deficit of a grand total of 37 megawatts of energy in 1982 - 1983?

A Yes, sir, but you may very well get the worst water year you've ever had that year, and then what do you do?

Q What did you do before when you had the worst water year you

ever had?

A We had enough reserves and we had Bird in reserve to run, and then, it could have gone beyond that, but it didn't. We were afraid it would.

Q That's when your reserves were something less than 12%?

A I think they were about 10%, but our load was less, too.

Q So with 10% reserves in those days, when your load was a little bit less -- of course, the percentage is always based upon the load, isn't it?

A Yes, sir.

Q You were able to meet your needs based upon your existing resources?

A Yes, we did, because there were no unusual outages, extended outages, that prevented us from doing so.

Q When you include units 3 and 4 from Colstrip, as far as your peak is concerned, it is certainly true that you can't use all of that peak until 1983 - 1984, isn't that right?

A That's right.

Q Therefore your plant has to sell the surpluses until 1983?

A Either that or exchange for some energy needs that we may have.

Q On Exhibit No. 7, with respect to the inclusion of Colstrip 3 and 4 on your peak forecast, you have indicated Colstrip No. 3 operational on July 1, 1979?

A Yes, sir.

Q You don't mean that any more, do you?

A It's still our target date, sir.

Q You don't really think you can hit July 1, 1979 on Colstrip 3 if you got a permit tomorrow, do you?

A I'm not positive we can't. I think the odds of meeting it might be weak, but I still think it's mathematically possible.

Q You wouldn't want to plan on that basis, would you?

A I don't know that we plan, but we sure strive for it, because it's cost us money for every month's slippage.

Q You'd strive for it, but you'd be pretty content if it were November of '79 when you got Colstrip 3 on line?

A I wouldn't say content. We'd have to accept it.

Q And you're really assuming that that's the best you can do at this point, aren't you?

A Not necessarily.

Q You think you might make October?

A Or September.

Q But not July?

A Or August.

Q July is mathematically possible, but not the sort of thing you plan for?

A Well, we'll have to have an ace in the hole somewhere along the line, probably.

Q Turning to Exhibit No. 8, Mr. Hofacker, if you'll note the average energy use by the Corette plant, that is stated as 157 megawatts in every year?

A Yes, sir.

Q And the reason for that is that your Corette plant is designed at a relatively low load factor, is that true?

A Well, low. It's not considered a base load steam plant.

Q Whereas, to the contrary, Colstrip No. 3 is listed at 210 megawatts, which is the current nameplate rating,isn't it?

A Yes, sir, the current net.

Q I should say Colstrip Nos. 3 and 4.

A Yes, sir.

Q Now, is that because Colstrip 3 and 4 have been designed for a larger net capacity?

A Well, yes, sir, and it's because the fuel, the burning, is cheaper. The fuel is right there, and it's a cheaper fuel going into the plant, so that would favor it being an energy plant rather than a peaking plant.

Q I see. Because the Colstrip coal is next-door to the Colstrip plants, it's good business for you to burn more coal as a load factor at the Colstrip plants than it is at the Corette plant, 110 miles away from the mine?

A Yes. Fuel is more costly.

Q Well, actually, it's not the fuel itself, it's the freight cost that's the difference, isn't it?

A Yes, sir, but when you're paying for the fuel, you're paying for the freight, too.

Q You're talking about delivered fuel?

A Yes, sir.

Q I take it it's not your job as planner, Mr. Hofacker, to determine what the cheapest fuel will be to put into a coal-fired unit? That's what the operating people do, isn't it?

A Well, on a day to day basis, yes, sir, but when we do economic studies, we do that.

Q Are you the one who made a study on the comparative costs of using Colstrip coal as opposed to using the coal from the mine at Gillette, Wyoming?

A For what units?

Q Colstrip 3 and 4.

A I didn't make the study.

Q Did somebody?

A I don't know.

Q Ever seen such a study?

A I've heard some numbers, but I've never seen a study, to my memory.

Q Have you ever seen a study comparing the cost of the use of Colstrip coal in Colstrip units 3 and 4 with the cost of the use of coal from anyplace else in the world?

A Why should we? We're sitting on the coal pile.

Q Well, the why should we, I suppose, would have to do with the complete economic analysis of what it would take to build and operate a plant with some coal other than Colstrip coal. Have you done that?

A No, because the economics would not pan out. You can tell that without any deep study by looking at your prices of coal.

Q In any event, you did decide that without any deep study?

A Yes, sir. We did look at other sites, as you recall, for units 1 and 2 as far as the cost of fuel delivery.

Q That's right, but you didn't look at any other sites for units 3 and 4, did you?

A No, sir.

Q Because you'd already done your economic analyses before you built 1 and 2?

A Yes, sir.

Q Further looking at Exhibit 8, I think you told us that of course

that shows on the exhibit itself, that you would have a surplus in all of the years shown on the exhibit, as well as in the next year that doesn't show on the exhibit, is that right?

A Yes, sir.

Q But by two years past what shows on the exhibit, you thought you would be using all of your average energy, is that right?

A With that proposed growth rate, yes, sir.

Q Now, tell me, Mr. Hofacker, in the year 1987 - 1988, some twelve years downpipe, what effect do you think price elasticity is going to have on your growth rate?

A It definitely will have an effect, but you have to take into consideration what the alternatives are, the energy prices, and that doesn't look a bit better; in fact, it looks a lot worse right now.

Q Well, as a matter of fact, Mr. Hofacker, it is true with respect to your load forecast, is it not, that you have not taken price elasticity into account?

A As I said in my direct testimony, that's one of the things we considered, the price of electricity going up compared with people using gas or oil, natural gas or oil.

Q What formula did you use to determine the effect of price?

A We didn't use a formula other than the percentage of increase, which seemed to be considerably larger for the natural gas along with less availability, and oil -- we foresaw the electric rates going up.

Q As far as natural gas is concerned, were your considerations restricted to the availability of natural gas to the Montana Power Company across the Canadian border?

A At the current time, because that's where 85% of our gas is coming from.

Q Where does the rest of it come from?

A Within the State of Montana.

Q That's from natural gas fields that you have explored and mined yourselves?

A Yes, sir.

Q What consideration did you give to obtaining natural gas from an interstate allocation through the Federal Power Commission?

A I had nothing to do with that, sir.

Q Well, gas right now at the Canadian border is a dollar per thousand cubic feet?

A Yes, sir.

Q And you know, do you not, Mr. Hofacker, through the studies that have been done by the National Economic Resource Associates, of which Dr. Kent Anderson is a member, they discussed the deregulation of natural gas to provide additional allocations at a price of sixty cents per thousand cubic feet. Did you know that?

A This side of the border gas you're talking about?

Q Yes, the United States, from state to state.

A Yes, but didn't he couch that in some qualifying terms when he said that?

Q What's your recollection?

A I thought there were some qualifying terms, but I'm not positive.

Q It's up to the FPC, isn't it?

A It certainly is.

Q They set the priorities, they make the allocations?

A They certainly have.

Q They decide what's available, based upon the applications that are made to them?

A Right.

Q And of the applications made to the FPC for the allocation of natural gas, the Montana Power Company is not included?

A That's right.

Q Do I take it to be your testimony that what you have done is to determine that whatever effect price of electricity would have upon demand for electricity, that will be more than countereffected by the alternative price of natural gas?

A That's our best estimate now.

Q And your best estimate, I take it, has not reflected itself in any statistical or mathematical computation?

A No, sir.

Q What effect, do you think, in the years 1987 - 1988, energy conservation will have upon the demand for energy?

A It may well have; however, there have been many, many studies that indicated -- and I think in our depositions we provided you with summaries of some thirteen studies that indicated that in the five to six percent electrical energy growth, when taking all these things into consideration, it will continue.

Q Well, what's the decrease in energy that has been effected in Southern California as a result of energy conservation measures taken?

A Pretty sizeable.

Q 18%, isn't it?

A I think it's something in that area.

Q Doesn't that show you what can be done if people want to conserve energy?

A I presume that it shows what can be done if they want to conserve, but that's the big question, do they want to conserve? I don't know.

Q What steps were taken in Southern California in order to encourage people to want to conserve energy there?

A Well, their oil prices jumped about ten times, I guess, something like that.

Q What steps were taken with respect to electricity users to make them want to conserve energy?

A I know there was a discussion of a surcharge, perhaps, something like that, in the peak load hours when consumption is over a certain amount, but I'm not fully acquainted with it.

Q They took the step of actually advising the folks who lived in Southern California that if they used more electricity than they had used at the same time the previous year, that they were going to have to pay a penalty for doing so, isn't that right?

A Yes, sir.

Q And the results of that potential penalty were that the individual users of electricity in fact decreased their use of electricity, isn't that true?

A Yes, sir.

Q Now, there are steps of that sort that can be taken in order to decrease the use of electricity, aren't there?

A I can't deny that.

Q What has the Montana Power Company done in order to promote such steps?

A Well, our ads or publicity activities of the last couple of years have been along the lines, use what you need, but use it efficiently. I believe that's been our format -- don't waste it.

Q Have you suggested to the Public Service Commission of the State of Montana or to anyone else in the State of Montana that they should consider a program like the one used in Southern California?

A No, we have not.

Q Have you suggested any program at all, Mr. Hofacker, on behalf of the Montana Power Company, that is, for any actual conservation of energy which would result in a decrease in the use of electricity?

A Yes, the one I mentioned.

Q That says use your energy efficiently?

A That's right.

Q Have you ever suggested using less electricity?

A Well, using it efficiently is using less electricity for the same job.

Q Have you ever suggested that users of electricity should be benefited by the extent to which they conserve it?

A No, sir.

Q Have you ever suggested that the users of electricity should be penalized by the extent to which they use their energy inefficiently?

A Our existing contracts that have peak payments in them, in

effect do that.

Q You mean those folks who have a larger call upon energy at some particular time pay more for the times that they use the most?

A There's a peak payment, yes, sir.

Q Well, with respect to someone like Anaconda Company, for example, do you have a contract with them that says "if you use less than what you have agreed to use, we'll give you some extra benefits"?

A No, but we have a minimum in the present contract. There's a minimum amount that they have guaranteed they would use and this is the base upon which we make capital expenditures to make sure those resources are there; however, in excess of that amount, then they have had a program that resulted in sizeable savings to them financially, of improving their load factor.

Q Their load factor, of course -- we have already discussed that, but you don't have any program with the Anaconda Company that says if they use less than their minimum, they won't have to pay for the minimum?

A No, sir.

Q There is no economic incentive to the Anaconda Company to use less than their minimum, is there?

A Yes, because they still pay -- well, I should say I'm not that fully acquainted with the contract. I should stop right there.

Q If they have a minimum that they have to use, they have to pay for what they have agreed to take, don't they?

A Yes, sir, but in effect, if they can't use it, they won't take it. Industry is one of the places with the least amount of conservation that can be effected, at least, in your basic industry. It takes so much energy to do a job, if they do it efficiently. You conserve beyond that and you cut out jobs.

Q Well, in those instances in which the Anaconda Company has already cut out jobs, they aren't able to cut out their energy use if it's below the minimum they agreed to take?

A Yes, they haven't taken it.

Q Mr. Hofacker, if they have agreed to take a minimum, that means that they must take that to which they have agreed.

A It means they must pay for that. It's a take or pay.

Q So they might as well take what they have paid for?

A Where do they put it?

Q Is there an economic incentive for them to not take the energy they have paid for?

A There was an economic incentive for us when the minimum -- and we agreed then to put in the facilities that would make sure they had that minimum when they wanted it, and that was the way it was drawn up. I'm sure that if you made an investment, you'd want to be sure that you were going to get a return on that investment.

Q Yes, sir, and that, of course, was the contractual pattern that you have followed with the Anaconda Company for many years, isn't it?

A Yes, sir.

Q And many years before there was anything like an energy crisis?

A Yes, sir.

Q And since these days of looking upon energy conservation have come upon us, you have not revised that form of contractual relationship with the Anaconda Company, have you?

A No, not to date.

Q One of the ways that you assess your projections, I think you told us on your direct examination, was that you have to determine what the population growth is going to be, is that right?

A That's one of the factors that we look at.

Q In order to determine population growth in the State of Montana, what do you look at inside the Montana Power Company system?

A That same list that you're looking at there as far as getting data, plus our customer load growth in the various areas.

Q You can look at your meter connections and that tells you?

A That's what I'm saying, customer load growth, yes, sir.

Q In terms of population projections; there is a science called demography, isn't there?

A Yes, sir.

Q The fact is, is it not, Mr. Hofacker, that looking at your population projections such as the notes that you have before you right now, have you ever conducted a demographic study limited to the Montana Power Company system?

A Only to the extent of our customer load growth by areas, by towns, and that, I think, you could call a demographic study of a sort.

Q Of course it's possible to conduct a demographic study into

the rural areas and suburban areas beyond the towns in which there is a census taken.

A I meant the area which we serve, which includes the rural areas, as well, the number of customers we have on our rural lines, and so forth.

Q If you know how many customers you have, you know how many meter connections you have?

A We do that.

Q But it is possible to have a demographic study done with respect to the population of your entire system, isn't it?

A Yes, sir, but is that going to give you any more than our customer hookups?

Q I don't know, and you don't know either, because you've never done it, have you?

A Well, we've seen the projections and what has happened in the way of population, and our population estimates, based on our meter connections, have been quite close.

Q You have never seen a population projection for your entire system alone, have you?

A Not isolated from any other system, no, sir.

Q What you've seen are the annual reports generated by the research and information systems division of the Department of Intergovernmental Relations of the State of Montana.

A I believe that includes areas that could generally remove certain areas that are not in yours. I think it isn't just one number for the whole state.

Q Well, it's pretty tough for you to do that, though, isn't it, because you have areas where you are not the only company

servicing the population?

A Oh, I don't know that that's so difficult. We know our meters connect and their meters connect. You take annual reports will have that, without even going to them.

Q Without reverting back to the historic patterns of the past, which is the meter connection, if you were to just look at annual population projections, you could not take any specific geographic area without having had some sophistication employed to determine what portion of that geographic area was within your service area, isn't that true?

A I'm not sure I understand the full connotation of your question, but we've been able to determine the movement from the rural areas to the metropolitan areas, counties that have gone down and other counties that have come up, and we know what portions of those counties we serve.

Q You are able to take the gross statistics from a particular county or a particular town and you try to apply those to your service area, don't you?

A Sure.

Q But you have never done a demographic study within a particular town or area, just for your system alone?

A Well, our history has been good in the past --

Q Just answer my question first.

A We have not done that and I think the reason we have not done that to date, it's a little bit like one of our surveyors said, it's like stepping off the distance and then correcting for temperature, and I don't think we need it that refined. We haven't to date. Maybe one day we will.

Q Some of the folks who are in the load forecasting business are of the opinion that our population projecting is going to have to be a lot more sophisticated in the future than it has been in the past, don't they?

A But they also say that you have to evaluate that. There are so many other factors, and judgment still has to enter into the picture.

Q And the better skills we have and the better tools we have, then the better we can exercise our judgment?

A You bet you.

Q So the more we could place reliance upon price elasticity and counter elasticity and projection of population, the better off we'll be, right?

A Right.

Q Who is Tom Dundas?

A I've heard the name, but -- I think it's on this list here, isn't it?

Q Yes, who is it?

A I think he's in charge of the Research and Information System, is he not, for the State?

Q He supplies you with county profiles?

A I'm not sure of all the information we get from him, but this is one of the places we have received information. This might include the county profiles. I think that's probably where we did get it.

Q The other information you used for population are the economic reports from the Montana Business Quarterly of the School of Business Administration at the University of Montana?

A Yes, sir, and they've been coming out now for a long time.

Q And of course you also used the information from the Bureau of the Census in Washington, D. C.?

A Yes, but that is spaced out quite a bit.

Q And you also used population estimates from the United States Department of Commerce?

A We do.

Q The fact of the matter is, Mr. Hofacker, that what you primarily rely on in your projection as to population is what your meter connections have shown in the past, isn't that true?

A Yes, sir, because that's the history that takes in the vagaries of human nature as to moving here and there and in and out. It's hard to project what a man is going to do. In the absence of some dire circumstance, it's a little hard to see a real drastic change happening immediately in the future.

Q How about the next five years? Do you think there might be some changes then?

A Some, probably.

Q It is true, is it not, Mr. Hofacker, as far as your load forecasting is done, you have never built cost price elasticity into your load forecast?

A Not as a formula, no, we have not.

Q The particular methodology that you use for load forecasting is what I believe you call trend extrapolation, is that right?

A Yes, sir.

Q And the statistical tool that you use for your analysis is

what I believe you call regression analysis, is that right?

A Yes, sir.

Q And the particular regression analysis you use is called the sum of least squares?

A Yes, sir.

Q Now, that's sometimes called the line of best fit, isn't it?

A Yes, sir.

Q What that means is, you get a lot of points on a map or a graph and you try and draw a line through those points that is the best line that connects all those points to the least amount of waver in the line, isn't that right?

A Yes, sir.

Q And really, based on your drawing a line through a lot of points in the past that you now use for your projection for the future?

A Yes, sir.

Q To the extent, Mr. Hofacker, that your projections in the past were off, that would not be reflected in the extent to which your projections today, the lie upon the line of best fit, would it?

A Well, if they were off drastically, it would have an effect on the curve that fits.

Q Well, you'd still have a line that you drew those points, would you not?

A Right, and looking at our exhibit, you can see that line. It's very close to those points for the 20 odd years on there.

Q Well, let's take a look at a couple of exhibits and see how we can put those together. Look at Exhibit No. 9 and Exhibit

No. 10. Now, in the first place, your actual data on Exhibit No. 9 is in the steady line that you would call your line of best fit, is it not?

A Yes, sir.

Q What about the total load line? That's your actual energy load, is it not?

A Yes, sir.

Q Do you have a line of best fit for that?

A No, those are the loads that occurred, actually occurred, and they're the ones -- the block loads above the base load data are as affected by strikes and so on and so forth.

Q If we were going to try to draw a line that showed your actual energy load from 1952 to 1975, we would start at a point which on Exhibit 9 is approximately 340 megawatts?

A You're talking peak? Yes, sir.

Q What else is on Exhibit No. 9 except peak?

A I mean the total rather than the base.

Q Yes. Total loads, actually sold?

A Yes, sir.

Q About 340 megawatts?

A Thereabouts.

Q And if we move to 1960, then the line would go on to about what? 360 megawatts?

A Yes, sir.

Q And if we move to 1970, the line would be about 550 megawatts?

A Yes, sir, 550, 560, somewhere in there.

Q And if we move to 1975, we don't yet have all of that data, of course, but we have your projection that where you leave off

actual data of around 605 or 610 megawatts, you'll end up in 1975 with about 650 megawatts, right?

A Yes, sir.

Q Now, if we were going to draw a line of best fit from 1952 to 1975 with just those four points, that line, sir, would be something like that, wouldn't it (indicating)?

A Yes, something like that.

Q But that's in part because we only have those four points?

A Yes, sir.

Q So if we were to add, for example, your 1954 load of just a shade under 300 megawatts and if we were to add your 1956 load of about 380 megawatts, and if we were to add your 1966 load of 500 megawatts, and then if we were to add your 1971 load of 570 megawatts, then our data point wouldn't fit that line I drew before that has the four different points, would it?

A No.

Q We'd have to get a different line, wouldn't we?

A That's right, but I think --

Q Yes?

A Some points should be taken out of there for the reason that they were unusable situations at that moment that did not affect the peak responsibility that we had for carrying a load; for instance, in 1954 there was a strike, a nine-weeks strike, and finally it worked back out of it so you would skip that one. The same thing happened with the 1959 and the same happened with the 1967, so those should be thrown out, just like you do in any analysis.

Q What you have done, Mr. Hofacker, in fact, is to take out all of the Anaconda load in your base load, isn't that right?

A That's to get the one that was positively trendable.

Q Because you couldn't get any trend extrapolation at all if you were to use the data points that appear from your total load, could you?

A Oh, I believe it would be possible to a degree, if you excluded those unusual situations.

Q But if you include what your actual total energy load was from 1952 to 1974, the fact is that you could not make the kind of trend extrapolation that you now make on your load forecast, isn't that true?

A Not with the accuracy that we think we can make doing it the way we do.

Q No, indeed, and one of the reasons for that is that your line of best fit on a regression analysis statistically, would not give you a sufficiently high confidence symbol, statistically speaking, to permit that kind of trend extrapolation, isn't that true?

A That's right.

Q What that means, translated from the statistical language to the layman's language is that you can't rely on the data, right?

A That's right.

Q But in taking out the Anaconda load, you have taken out something in the order of magnitude of 25% of your entire load, haven't you?

A No, it's less than 20% now, but it was that.

Q Well, go back to 1952.

A It's considerably more.

Q Your base load is only 160-odd megawatts, whereas the total load is almost twice that.

A That's right, but I was bringing up present data that we are not 25% any more.

Q If you come up to 1965, then the actual load represents almost 200 megawatts of a total of 480 megawatts, doesn't it?

A Yes, sir, and you take it on up and it becomes a smaller and smaller percentage of our total load and therefore, we can predict much more reliably what our coal load is going to be in the future than you could back where it was better than half of our total load.

Q Maybe, Mr. Hofacker, if we take from 1970 to 1990, with a small additional load that constitutes something beyond your base load, you would then have the basis for a trend extrapolation on a very large share of your total load over that period of time. That's possible, isn't it?

A Yes, sir.

Q But it's certainly the case that you cannot now trend extrapolate from anything more than about 60% of your load for the period 1952 to 1972? Isn't that true?

A Not entirely the way you said it, in my opinion.

Q Okay, tell me why not.

A Because your base load curve hits the load as it actually occurred last year and we are projecting forward from that point and not from a fictitious point.

Q But Mr. Hofacker, you can't take your base load curve in 1974

and project from one year's experience, you're not telling us that, are you?

A I didn't say that, sir.

Q What you're telling us is that you take the actual data in 1974 and then use the 20-year analysis from the past to project beyond 1974?

A Yes, sir.

Q And I'm focusing on the 20-year analysis from the past. During that time, your trend extrapolation has been limited to about 60% of your load overall, hasn't it?

A Yes, sir, from better than fifty to about 20% now.

Q Now that is the reason, is it not, Mr. Hofacker, when you look at Exhibit No. 10 and we see all those squiggley lines that are all over the map from 1965 to 1971, we understand that there is a discrepancy because of the difference between the total load and the base load?

A Yes, sir.

Q And if we were to have presented to us with Exhibit No. 10 the years prior to 1966, the squiggley lines would be even more disparate than they are now, isn't that true?

A I don't know that to be true, but it might be.

Q Well, you can pretty well tell that just by the naked eye in looking at Exhibit 9, can't you? The biggest discrepancy between your actual load and your trend-based potential load is in the year 1957 -- or 1956 -- isn't it?

A Yes, it is, but most of the squiggleys you're talking about are the month by month variations to the years.

Q Well, in 1956 with such a big discrepancy between the actual

load and your trend base load, you would expect a pretty big squiggley in there, wouldn't you?

A Probably so. There again is why we went to the base load.

Q Because you simply can't do it any other way, can you?

A That's right.

Q But the fact is, we're trying to determine what your load will be in the future, and we've got to consider and project that portion of the load that is not the base load, don't we?

A Yes, sir.

Q Now, tell me what strikes you anticipate the Anaconda Company will have between now and 1985?

A We know there are going to be strikes, but we know that following the strikes they normally build back up so that we still have to provide that peak load as it builds back up.

Q What are the years in which you expect the strikes to occur?

A I have no idea -- whenever the contracts are up if there's going to be one. Sometimes they're five years apart, sometimes they're only a few months apart, six years apart -- five, six years is a good interval.

Q When does the next contract come up?

A I think they just wrote a 3-year contract, just this spring, I believe, or is it a year ago? I guess it's a year ago now, so I guess maybe two years from now.

Q Planning on a strike in 1977 in your projections of what you'll need that year for the Anaconda Company?

A No, sir, but if they don't have it, we'd better have the capability to serve their load.

Q And if they do have it, then you're going to have a rather

substantial surplus?

A But the following year we'll have to have it anyway.

Q And the year in which you have the surplus, you're simply going to have a surplus, right?

A Why sure, but that's the nature of the business.

MR. SHENKER: May I have the original of Exhibit 10, please? (EXHIBIT NO. 10 GIVEN TO MR. SHENKER)

Q Mr. Hofacker, in your direct examination, I believe that you told us that the difference between No. 10 that has been received in evidence and the Exhibit No. 10 that was projected on the screen is that the one on the screen had more current data, is that right?

A Two more months of history had been entered.

Q And if we use those two more months of history, then Exhibit No. 10 would be substantially cut down for both the estimated and actual loads, wouldn't it?

A As happens every year. This is the annual load pattern.

Q I wonder if you could approximate for us, Mr. Hofacker, on Exhibit No. 10 what the more current data would show? Just write it in there on Exhibit No. 10.

A The more current data?

Q Yes.

A I'd have to sketch it in here a bit.

MR. BELLINGHAM: Do you have the available information to do this?

WITNESS: I have my chart right here.

HEARINGS EXAMINER: When you get to a good stopping place, I'm ready to quit whenever you are.

MR. SHENKER: I have a suggestion, Mr. Davis. Let's let Mr. Hofacker finish Exhibit No. 10's reconstruction at leisure, and I'd like to mark the last chart as the DNR Exhibit No. 8 and offer it for illustrative purposes.

MR. BELLINGHAM: We do not object

DEPARTMENT OF NATURAL RESOURCES PROPOSED EXHIBIT NO. 8 MARKED FOR IDENTIFICATION.

HEARINGS EXAMINER: It will be admitted as Exhibit No. 8. Would you have someone on your staff prepare the copies of that?

MR. SHENKER: I'd be glad to. Shall we go off the record, then, for the day?

HEARINGS EXAMINER: If that's agreeable to you. I don't want to interrupt your cross, but it sounds like you might have considerable more.

MR. SHENKER: Yes, I do have considerably more, and I think in fairness to Mr. Hofacker, it would be easier for him to finish Exhibit No. 10 without our asking him any more questions while he is at it.

HEARINGS EXAMINER: Well, let's do it that way, and then, Mr. Ross had a reply to a request that you made earlier today. Mr. Ross?

MR. ROSS: I have checked with Mr. John Hauck, who is Secretary of the Montana Power Company, with regard to minutes of the Board of Directors, and the copy of those minutes that we have previously given you are verbatim copies of the minutes of the Board of Directors.

MR. SHENKER: The ones in the interrogatories, John?

MR. ROSS: Yes, they are verbatim copies.

MR. SHENKER: Thank you kindly.

HEARINGS EXAMINER: Someone will have to pick up copies for the Board members so we'll have identical copies.

MR. SHENKER: We can have a photographic copy of the reconstructed No. 10 made.

MR. MELOY: Mr. Davis?

HEARINGS EXAMINER: Mr. Meloy?

MR. MELOY: In response to a question from Mr. Peterson when we were last in session, he wanted to know what other people we might have as witnesses for our case in chief, and at this time, let the record show that we are only planning on Mr. Norco, whose name we gave him on Friday, for the Department of Health hearing. Secondly, with regard to Mr. Norco's deposition, Mr. Peterson and I, after considerable discussion, have decided perhaps it would be better to wait until either Mr. Sheridan or Mr. Shenker is free to attend that deposition, which will be some time, I assume, after Mr. Sheridan's service duty is up, and that seemed to be acceptable to Mr. Peterson.

HEARINGS EXAMINER: Very well, the record will so show. If there is nothing further, we will adjourn until 9:00 o'clock in the morning.

HEARING ADJOURNS AT 4:55 P.M.

SECTION 10

Heating Systems: Conventional and Solar (Monitoring)